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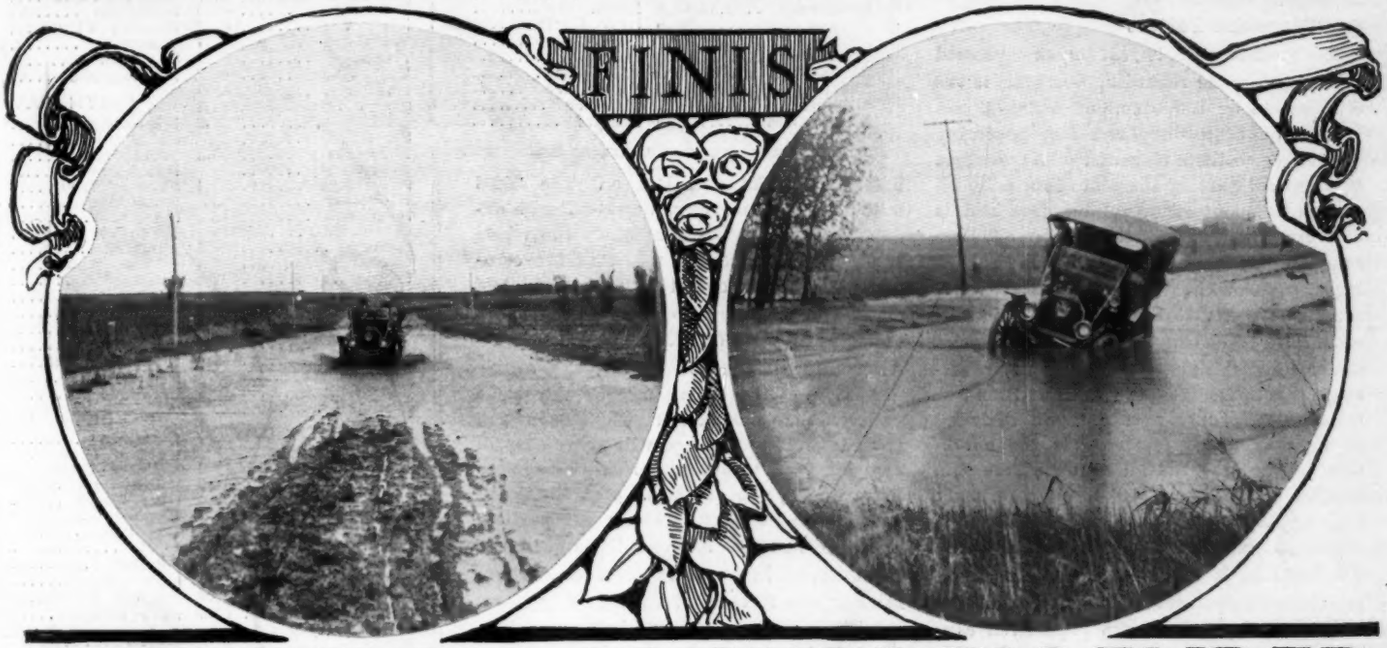
MOTOR AGE



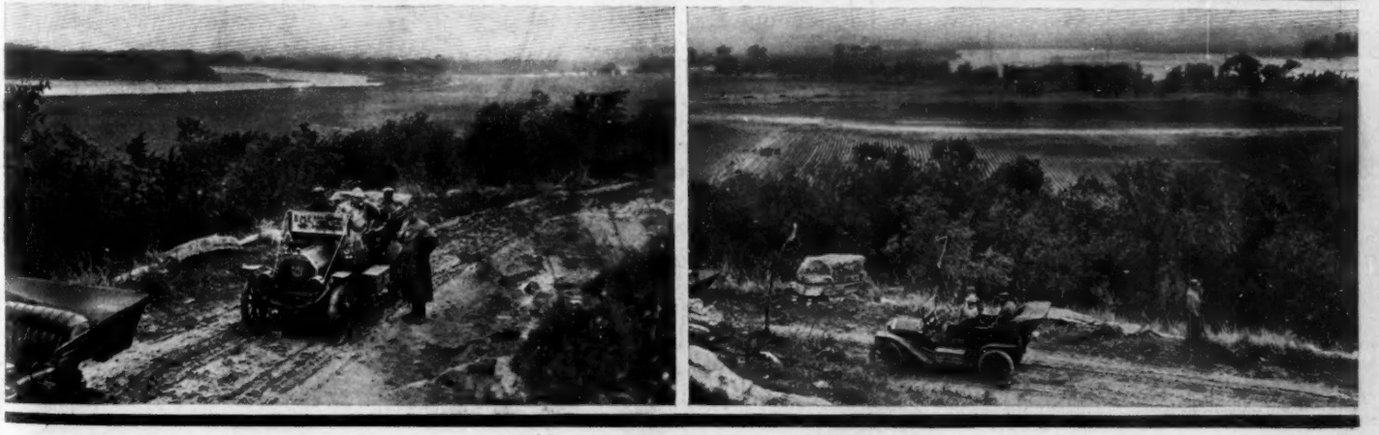
PATHFINDING OF GLIDDEN ENDED

WATERY ROADS AT WILSON, KAN.

PATHFINDER AFTER STORM AT WILSON

KANSAS CITY, MO., May 20—The work of laying out the route of the Glidden tour for 1909 is completed, the pathfinder E-M-F having reached its destination in this city at 6:30 this evening, and completing the fifteenth day of the run, which totals up to 212.8 miles, and will prove the longest and hardest day of the tour. Today's run from Topeka to Kansas City introduced Pathfinder Lewis to the worst bit of road on the tour, and which will prove the hardest next July unless considerable road improvement is done before that time. The road is hilly and the surface rough, but it is predicted that when the tour comes along in July the sun and wind will have ironed out the rough spots.

One of the surprises following the completion of the tour is the announcement that the contest board has ordered a resurvey of the route between Minneapolis and Fort Dodge, Iowa. As already laid out, the course is from Minneapolis to Mankato, 132 miles, and Mankato to Fort Dodge, 138.6 miles. This route comprising the 2 shortest days of the run and the only days on which the mileage drops below



FARM LANDS IN KANSAS AS SEEN BY THE GLIDDEN SCOUTS

the 150-mile mark. The cause of the trouble seems to lie with the citizens of Mason City, who are clamoring for the route to be laid through their town and which would make the mileage considerably less between Minneapolis and Fort Dodge—in fact, too short for a 2-day run and too long for a single day's trip. What the outcome will be is not known, although orders are issued to ship the pathfinding car to Minneapolis, yet Pathfinder Lewis leaves tonight for Buffalo instead of Minneapolis.

One Regretable Feature

The most regretable feature, as expressed by many Iowans regarding the tour, is the elimination of the excellent farming belt across the center of Iowa and bordering the transcontinental route. At present this central part of the state is a most remunerative motor car selling area and is entirely eliminated in the present Glidden schedule. Roughly speaking, Iowa is a huge square; the transcontinental route crosses this practically through the middle, extending from Clinton to Omaha through Cedar Rapids, Marshalltown, Boone, Jefferson, Carroll, Denison and Council Bluffs to Omaha. The only part of Iowa included in the announced itinerary is the northwest corner, the route angling across this quarter of the state. Protests are already coming from other cities of Iowa, such as Waterloo and Des Moines, big motoring centers, and it does appear only common sense that some respect should be paid to the demands of the dozen population centers scattered throughout the fertile section of Iowa.

The Glidden tour for this year is going to be a much more serious proposition than those of previous years. To begin with, the course includes 15 running days instead of 12, and the total mileage is 2,637 as compared with 1,670 miles last year. The average daily mileage is 175.8. Last year it was 139.1. On three occasions the daily trip exceeds the 200-mile mark, two of these being across the state of Nebraska between Omaha and Denver. The 212.8 miles on the last day, however, will undoubtedly prove the hardest on the whole run and will probably result in the elimination of some cars that previously had clean scores. On 10 of the 15 days' run the trips average over 170 miles.

Analyzing the Course

Analyzing the course day by day some valuable points come up: The 2-days' run from Detroit to Chicago will prove easy in any kind of weather. From Chicago to Minneapolis, another 2-day trip, the going will be easy in dry weather but particularly bad in rains, as not a little gumbo is encountered in central Wisconsin. From Minneapolis to Omaha, a third 2-day siege, it will be easy negotiating in dry weather but bad if wet weather should be experienced. The 3-day stage between Omaha and Denver will undoubtedly be good, as it is not expected rains will have very much effect on the roads and it is most unexpected to have rains during that season of the year. The final stage of the run, comprising the 4-day trip from Denver to Kansas City, will prove easy in any kind of weather over the first part, but the latter half will be a difficult trip in any kind of weather.

Complete Glidden Route Through West as

FIRST DAY	Miles
Detroit	
Dearborn	10.4
Inkster	13.9
Eloise	15.6
Wayne	17.7
Canton	22.5
Denton	25.2
Ypsilanti	30
Ann Arbor	38.6
Lima Center	49.4
Chelsea	53.5
Grass Lake	65
Leoni	68.1
Jackson	75.3
Sandstone	81.2
Parma	85.5
Albion	93.7
Marshall	105.2
Ceresco	110.2
Postumville	117.1
Nickols	117.4
Battle Creek	118.5
Urbandale	121.5
Level Park	124.2
Augusta	128.7
Galesburg	133.6
Comstock	138.4
Kalamazoo	142.2

SECOND DAY	
Kalamazoo	
Almena	13.5
Paw Paw	19.2
Decatur	29.5
Dowagiac	44.7
Pokagon	51.2
Sumnerville	52.8
Niles	59.1
South Bend	70.1
New Carlisle	84.1
La Porte	97
Pinhook	105.3
Westville	108.9
Valparaiso	119.8
Wheeler	127.6
Hobart	132.9
Highlands	144.5
Hessville	146.8
Hammond	151.3
South Chicago	
Chicago	173.2

THIRD DAY	
Chicago	
Evanston	12.1
Kenilworth	15.6
Glencoe	20.3
Highland Park	26.1
Fort Sheridan	28.7
Lake Forest	32.4
Lake Bluff	34.7
North Chicago	37.7
Waukegan	40.4
Zion City	46.7
Winthrop Harbor	49.1
Kenosha	55.9
Lake Shore	62.7
Racine	66.9
South Milwaukee	81.2
Cudahy	84.6
St. Francis	86
Milwaukee	91.2
Brookfield	104
Pewaukee	110.4
Hartland	115
Nashotah	118
Okauchee	120
Gifford	121.4
Oconomowoc	123.4
Ixonia	129
Watertown	136.4
Hubbleton	144.3
Portland	149.2
Waterloo	151.1
Marshall	155.5
Sun Prairie	163.4
Burke	170.5
Madison	175

FOURTH DAY	
Madison	
Pheasant Branch	7.2
Ashton	10.3
Springf'd Corners	14.6
Sauk City	24.9
Prarie du Sac	26.4
Baraboo	42.1
Abelmans	51.6
Reedsburg	60.5
La Valle	68.4
Wonewoc	76.5
Union Center	82.9
Elroy	87.6
Glendale	92.9
Kendall	94.7
Wilton	104.9
Norwalk	110.9
Sparta	125
Neshonoc	138.7
Salem	140.2
La Crosse	154.4

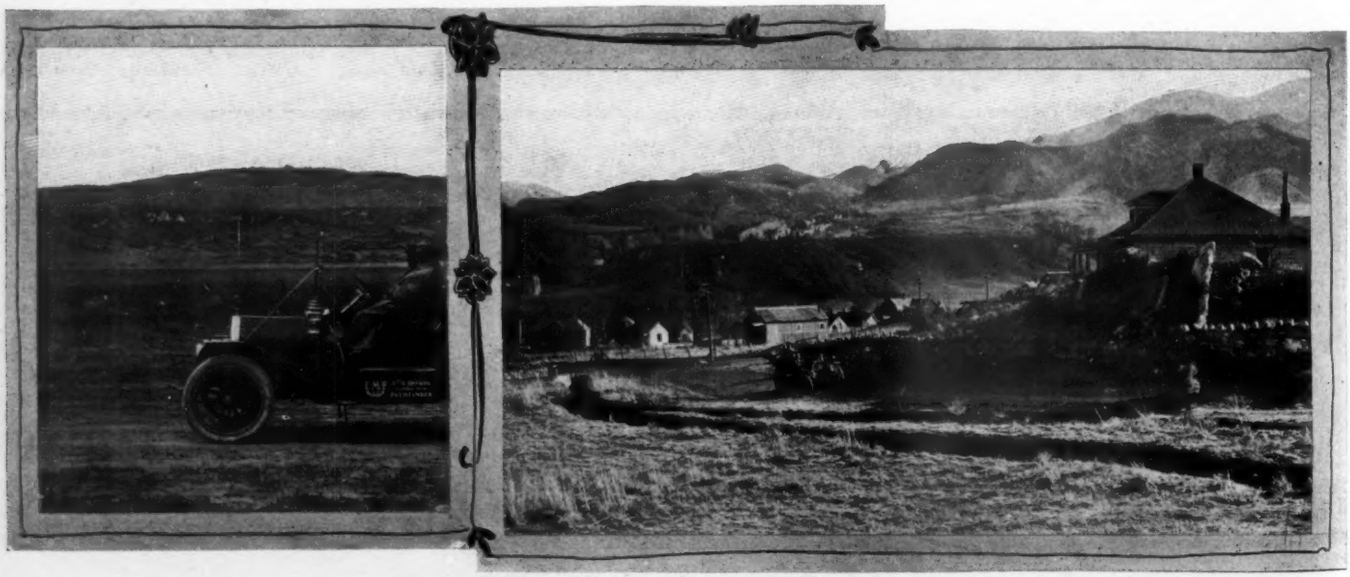
FIFTH DAY	
La Crosse	
La Crescent	3.3
Ridgeway	21.4
Witoka	25
Winona	34.6
Stockton	42.7
Lewiston	49.4
Utica	54.3
St. Charles	60
Dover	64
Eyota	69.3
Chester	76.3
Rochester	82.9
Oroboco	94
Pine Island	101.3
Zumbrota	108
Hader	116.4
Wastedo	119.9
Cannon Falls	128.1
Hampton	137.8
Empire City	142.4
Westcott	156.4
St. Paul	166.8
Minneapolis	177.8

SIXTH DAY	
Minneapolis	
St. Paul	9.5
Westcott	20.9
Rosemount	27
Farmington	34.8
Northfield	49
Dundas	52.3
Faribault	64.3
Medford	73.3
Clinton Falls	75.6
Owatonna	80.7
Meridan	90.3
Waseca	97.8
Elysian	111.8
Greenland	114.4
Madison Lake	119.6
Eagle Lake	124.9
Mankato	132

SEVENTH DAY	
Mankato	
Garden City	14.6
Vernon Center	21.1
Winnebago	35
Blue Earth	45.2
Elmore	55.1
Bancroft	77.3
Burt	84.2
Algona	93.6
Humboldt	120.4
Dakota City	121.2
Fort Dodge	138.6

EIGHTH DAY	
Fort Dodge	
Moorland	9.2
Callender	15.2
Gowrie	21.6
Dana	37.2
Grand Junction	42.4
Jefferson	50.3
Scranton	60.3
Ralston	67
Glidden	72
Carroll	79.5
West Side	92.1
Vail	98

The tour embraces in its itinerary ten states: Starting with Michigan the roads



JUST OUTSIDE OF SEDALIA

GARDEN OF THE GODS AS SEEN BY THE PATHFINDERS

Laid Out By Dai Lewis in E-M-F Pathfinder

Denison	107.2	Atwood	68.3	Hays	91.5	Fort Riley	54.0
Arion	115.5	Merino	74.4	Victoria	102.5	Ogden	59.9
Dow City	118	Hillrose	93.6	Walker	106.4	Manhattan	71.7
Dunlap	126.6	Brush	103.3	Gorham	109.4	Zeandale	79.6
Woodbine	138.2	Fort Morgan	112.7	Russell	118.4	Wabaunsee	84.2
Missouri Valley	158	Moreville	148.2	Bunker Hill	128.3	Wamego	89.8
Loveland	162.7	Bennett	173	Dorrance	136.1	Belvue	97.8
Honey Creek	167.2	Watkins	182.5	Wilson	143.5	St. Marys	105.7
Crescent	173.1	Sable	194.8	Black Wolf	154.2	Rossville	113.2
Council Bluffs	181	Denver	204.8	Ellsworth	163.1	Kingsville	116
Omaha	185.5			Kanopolis	168.1	Silver Lake	118.5
		TWELFTH DAY		Terra Cotta	174.4	Topeka	132.5
NINTH DAY		Denver		Brookville	184.4	Big Springs	145.4
Omaha		Petersburg	6.5	Bavaria	191	Lecompton	153.4
Elk Horn	17	Littleton	9.2	Salina	199.7	Lawrence	167.6
Waterloo	20.2	Acequia	16.3			Eudora	176
Valley	23.6	Gann	19	FIFTEENTH DAY		DeSoto	185.6
Freemont	37.4	Sedalia	23.5	Salina		Cedar Junction	187.3
Ames	45.7	Perry Park	37.9	New Cambria	6.6	Monticello	194
North Bend	53.9	Palmer Lake	47.3	Solomon	15.8	Zarah	195.5
Rogers	61.1	Monument	50.8	Abilene	24.7	Shawnee	202.2
Schuyler	69.3	Pring	54.1	Detroit	30.9	Merriam	203.3
Benton	78.2	Breed	62.6	Chapman	37.1	Rosedale	207.9
Columbus	85.8	Pike View	64.7	Junction City	49.8	Kansas City	212.8
Duncan	94.5	Colorado Springs	70.5				
Silver Creek	104.7	Falcon	86.2				
Havens	110.4	Calhan	107.9				
Clarks	116	Ramah	121.1				
Central City	126.9	Mattison	133				
Chapman	137.2	Resolis	143.8				
Grand Island	150	Limon	152.6				
Alda	158	Genoa	162.9				
Wood River	168	Hugo	173.5				
Shelton	176.5						
Gibbon	182.7	THIRTEENTH DAY					
Buda	191.1	Hugo					
Kearney	195.7	Mirage	9.6				
		Boyero	17.9				
TENTH DAY		Aroya	28.2				
Kearney		Wild Horse	35.4				
Odessa	9.6	Sorrento	42.1				
Elm Creek	16.6	Kit Carson	48.3				
Overton	26.5	Arena	53.9				
Lexington	36.8	First View	62.4				
Cozad	55.1	Ascalon	67.9				
Willow Island	60.2	Cheyenne Wells	72.9				
Gothenburg	68	Salis	77.8				
Bignell	103.1	Arapahoe	82.5				
North Platte	116.5	Chemung	87.6				
Hershey	130.1	Weskan	94				
Sutherland	136.7	Monotony	97.5				
Paxton	149.2	Sharon Springs	106.2				
Korty	156	Wallace	115.3				
Ogallala	169.3	Gill	122.1				
Brule	180.3	McAllaster	130.2				
Julesburg	206.2	Winona	140.6				
		Page City	147.3				
ELEVENTH DAY		Monument	155.6				
Julesburg		Oakley	165				
Ovid	8.3						
Sedgwick	16.5	FOURTEENTH DAY					
Red Lion	27	Oakley					
Crook	33.9	Grinnell	12				
Proctor	42.2	Grainfield	21.5				
Powell	44.8	Buffalo Park	27.5				
Iliff	49.6	Quinter	35.9				
Ford	54.1	Collyer	43.8				
Hayford	57.3	Boda	49.3				
Sterling	61.9	Wakeeney	56.8				
Hall	66	Ogallah	65.9				
		Ellis	76.5				

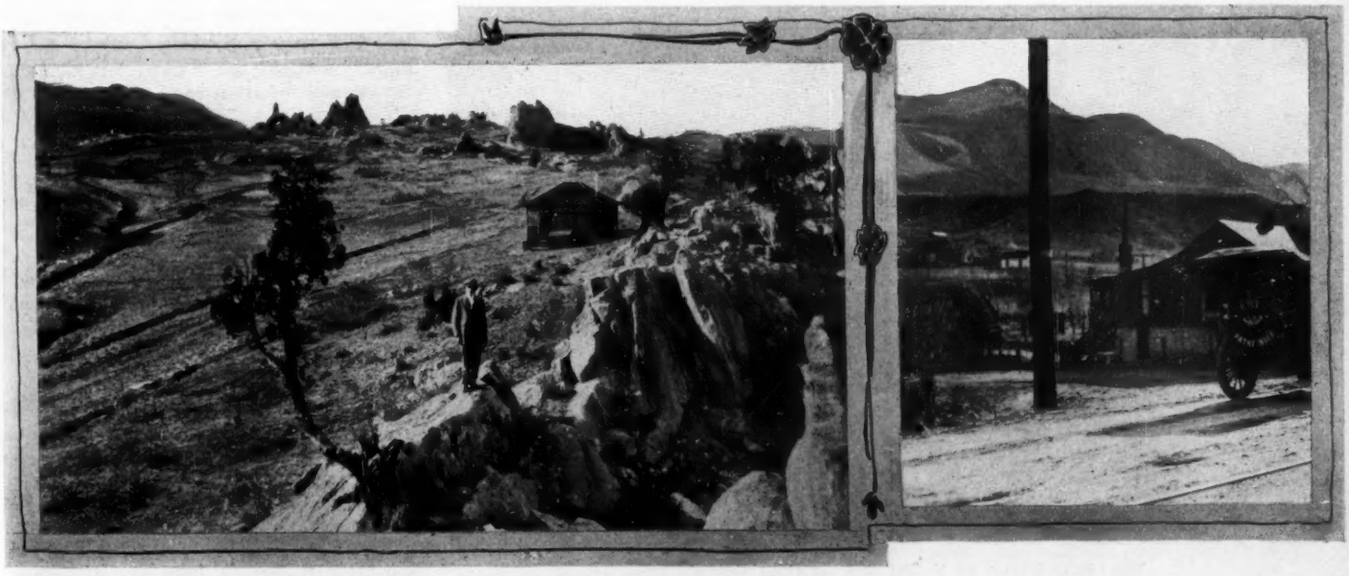
may be described as sandy throughout; Indiana has gravel roads; the portion of Illinois covered is macadam throughout; Wisconsin is principally clay; Minnesota is best described as gravel and gumbo, the division about half and half between them; Iowa offers a triple combination of gumbo, sand and gravel; Nebraska is sand with natural roads; Colorado has a gravel road as far as Colorado Springs, but natural roads in the remainder of the state; Kansas has miles of natural roads and long stretches of gumbo; and the Missouri experience is but through Kansas City.

Some Hills On Course

The course will not prove entirely free from hills, there being a few points punctuated with slight elevations. The first real hill experiences will come on the Madison-LaCrosse stage in crossing a series of three high hills, designated the Tunnels, because the railroad is tunneled through them. Between LaCrosse and Minneapolis are several hills near Winona, where the tourist will pass through a 10-mile valley offering some of the prettiest landscape scenery of the run, barring the 195 miles when the tourist will be in constant sight of the Rocky mountains. In the Winona valley tourists will get a glimpse of Sugar Loaf hill where the Indian princess committed suicide and has been immortalized by naming the valley after her. The stage from Minneapolis to Omaha is level, but from Omaha to Denver, although many tourists imagine it a road as straight as the crow flies alongside of the railroad track, the roadway is up and down all the time, and it does anything but follow the railroad track, often straying 4 and 5 miles away from it. The course is anything but straight, too. The tourists need not be surprised at finding they have to make right-angled turns every mile or so. These turns are compulsory because of the way the land is laid out in sections and each section surrounded by a wire fence. The route from Denver to Colorado Springs is rolling for the entire 70 miles and will prove one of the prettiest runs on the tour, the Rocky mountains being to the right all of the way.

Not a few of the motorists will experience carbureter troubles on this part of the run. Denver is at an altitude of 1 mile above sea level and unless carbureter adjustments are permitted at the Colorado capital there will be some troubles before the motorists are out of the state. The radiator water boils very readily on this part of the journey and should there be much tire changing the driver and mechanic will find it particularly hard work. The run from Colorado Springs to Hugo is continually up and down hills for the first 100 miles over prairie land. As Hugo is approached it becomes more level. The run from Hugo to Oakley is over level prairie land which so far has proven little good for anything. Beginning with the Oakley-Salina stage the far-famed wheat lands of Kansas are encountered, and few hills will be met with. These famous farming lands continue on the last day's run from Salina to Kansas City with plenty of hills between Lawrence and Topeka. This day's tour may be described as rolling country all of the way.

One of the difficulties on the trip from Omaha to Denver, and Denver to Oakley, will be the water trouble.



PICTURESQUE SCENERY IN THE GARDEN OF THE GODS

ROCKIES AT COLORADO SPRINGS

BIG FIELDS PROBABLE IN CHICAGO ROAD MEET

CHICAGO, May 24—Progress in the promotion of the two road races of the Chicago Automobile Club—for the Cobe cup and the Indiana trophy—is rapid and there is every reason to believe the meet of June 18 and 19 will be a huge success. Rules were completed last week, the Lewis company is hurrying to complete the work of re-surfacing the course; Colonel Sanborn has mapped out his plans for policing the circuit with the First regiment of the Illinois National Guard; the sale of seats, which was thrown open to the public this morning, is good; President Cobe has received a wash drawing of his trophy. Asa Paine, of Minneapolis, has been chosen as referee.

Up to this morning there had been received in all nineteen entries, of which nine are Cobe cup candidates and ten are in the curtain-raiser. The last to come in was an Apperson Jackrabbit, nominated by Edgar Apperson, who names Herbert Lytle for driver. This is one of the two that will run for the Kokomo concern, it being the intention to make the other nomination at the end of the week. The Apperson goes on the same tab that already includes three Buicks, to be driven by Strang, Chevrolet and Burman; two Knoxes, to be driven by Denison and Bourque; two Stoddard-Daytons, with Miller and Englebeck up, and a Fiat, put in by E. A. Hearne, who intends driving himself. In addition there are expected a couple of Locomobiles and perhaps a Thomas little six. Two more Fiats are possibilities, it is stated.

Ten in the Light Car Race

No new entries have been received for the light car event since the two Chalmers-Detroits were turned in last week, but it is expected that a Corbin and a pair of Locomobiles will come to hand before the lists close. The ten in now are the two Chalmers-Detroits, two Stoddard-Daytons, three Buicks, two Marions and a Moon.

THE RACE POSTER

Visitors to Crown Point yesterday found that the work of scraping the circuit has been nearly completed. The new stretch on the north leg is ready for rolling, while 3 miles of the east leg have been completed. In all 7 miles are ready, except that 4 miles need to be rolled. This is on the east leg, and also on the stretch between Crown Point and Cedar Lake. There are two gangs of men at work. The one fixing the road includes thirty teams and thirty helpers, while in the taroid gang are twenty teams and fifteen helpers. In addition there are two scrapers, two steam rollers and a sweeper. The Lewis company has contracted for the entire stone output of Dolese & Shepard until the work is done and the stone is coming in at the rate of three carloads a day. Given a continuation of the present good weather the contractors declare they will have the circuit ready at the appointed time—June 1.

NEW ROAD BUILT AT NORTH END OF COBE CUP COURSE

Colonel Sanborn figures out it will take 800 members of the First regiment to patrol the course and in his plans he calculates on dividing the circuit up into three zones in which there will be forty-one stations. In the first zone stations 1 to 9 will be included, and also No. 41. A major will be in command and the section will include the grandstand site and also the congested streets of the town of Crown Point. Three hundred men will be needed for this zone. As many more will be required in the second zone, which will include the district in and about Lowell, with a major in charge. In the third zone the Cedar Lake district will be included, while the other stations will be in the country, the district being divided so that each squad will include eight men in charge of a non-commissioned officer.

Soldiers to Establish Camp

The regiment will be moved to Crown Point the night of June 17 and will pitch its camp in the rear of the grandstand. There the soldiers will live during the meet, and it is expected they will add a picturesque touch to the landscape. Each morning they will be distributed at their stations by means of motor trucks, which General Executive Trego is securing for the purpose. At the finish of each race the trucks will make the circuit, picking up the soldiers and returning them to their encampment. Also there will be half a dozen motor ambulances distributed around the course.

The Cobe trophy, a design for which has just been shown, is of an unique nature. It will stand 39½ inches and be of sterling silver. The base is to be of malachite marble, which in turn stands on an ebony base. The base consists of a convoluted section of Ionic design, surrounded by miniature winged motor car wheels, sprinkled with sprigs of laurel and oak. Ionic plates with appropriate wording, appear on the front and reverse of the trophy, one bearing the inscription, "The Cobe Trophy, Western Stock Chassis Race," and the other being left blank for the names of the winners. Above the broad frieze which surmounts the base is an allegorical depictment of the Spirit of Speed, which includes the nude figure of a woman with wind-blown hair, seemingly gliding through space. Her left hand rests lightly on the surface of the urn, while her right arm is outstretched to cleave the air before her. Swallows, with wings outspread, accompany her. Below the mouth of the urn is a circlet of laurel leaves.

The rules were prepared by the technical executive board, David Beecroft, F. E. Edwards and Berne Nadall. The principal features of the Cobe cup rules are:

1—The Chicago Automobile Club has organized a road race, designated the western stock chassis race for the Cobe trophy, the race to be run over a road course of not less than 400 miles on June 19, 1909.

2—The course known as the Crown Point-Lowell one is, approximately, 23.6 miles in length and shall be covered 17 times during the race, making a total distance of 402 miles.

3—Not more than three cars of any one make can be entered.

4—The entrance fees are as follows: First car, $500; second car, $300; third car, $200. The number of entries in this race, as well as in the stock chassis race to be held June 18, to count as a total.

5—Entries close with F. H. Trego, general executive, 1240 Michigan avenue, Chicago, Ill., on June 5, 1909. After that date and up to June 10, 1909, entries will be received at an increase over the regular fee of $250 per car.

6—The total entry fee must accompany each entry and the amount of the entry fee will be, in no case, refunded, but will remain as a part of the funds of the race.

7—The technical committee reserves the right to eject any entry or entries, and to limit the number of entries in this to twenty.

8—All cars eligible to take part in this race must comply with the stock chassis definition of the American Automobile Association, and approved by the Manufacturers' Contest Association, to-wit: A stock chassis is one which, without any changes whatever, except that lighter rear springs may be used, can, by adding the necessary parts, be assembled into a complete stock car for which it is designed. The following changes will be permitted: Additions to oil and fuel supplies; changes of steering post angle, and change of driving gear ratio; tire and rim equipment is left optional with the entrant. Additional specifications see pp. 11, 13 and 15.

9—Competing cars must not have a total piston displacement in excess of 525 cubic inches.

10—Competing cars in running order, but without water, gasoline, tools, spare tires or parts, must weigh, at least, 2,250 pounds, this weight including oil in the motor and transmission. A 2 per cent ballast will be permitted to bring the car's weight up to 2,250 pounds.

11—All competing cars in the race must have a horizontal exhaust directed towards the back part of the car with its extremity sufficiently elevated to avoid the raising of dust and located below the frame level. Satisfactory seats for two persons located side by side.

12—Any capacity of gasoline tank may be fitted and its location is optional, but a pressure feed system cannot be changed to a gravity feed, or vice versa.

13—Any oiling capacity desired may be fitted, but the stock system used must be retained. Hand pumps, as auxiliaries, to inject oil direct to the crankcase or cylinders and to be operated by the mechanician may be fitted, excepting in this respect the stock oiling system must also be used.

14—Shock absorbers, rubber bumpers, and rebound straps may be fitted as desired.

15—Each car must carry two persons seated side by side, of a minimum average weight of 132 pounds each; it being understood that in case this average weight is not reached it should be made up by ballast.

16—Every agent of oxidization other than atmospheric air is forbidden.

17—The technical committee reserves to itself the right, immediately the race is over and within a period of 24 hours thereafter, to take all necessary steps to verify the parts of competing cars stamped by it or otherwise.

18—Any proven attempt at fraud in the evasion of the stock definition and status of the car on the part of an entrant shall disqualify the car, the driver and the entry.

21—All mechanical repairs and adjustments must be made solely by the crew of the car, this including replacing of tires and replenishing with oil, water and gasoline. All replenishing with oil, gasoline and water shall be done at the repair pits at the grand stand, water emergencies excepted. Tire replenishing may be done at two points; one at the grand stand pits, the other at the tire control at Lowell. Pit attendants may hand the repairs or replenishments from the pits to the car crew, or place them on the ground in front of the pit, but cannot in anywise convey them from the pit to the car. Pit attendants shall not leave the pits during the race.

22—Any competing car voluntarily leaving the course shall be disqualified.

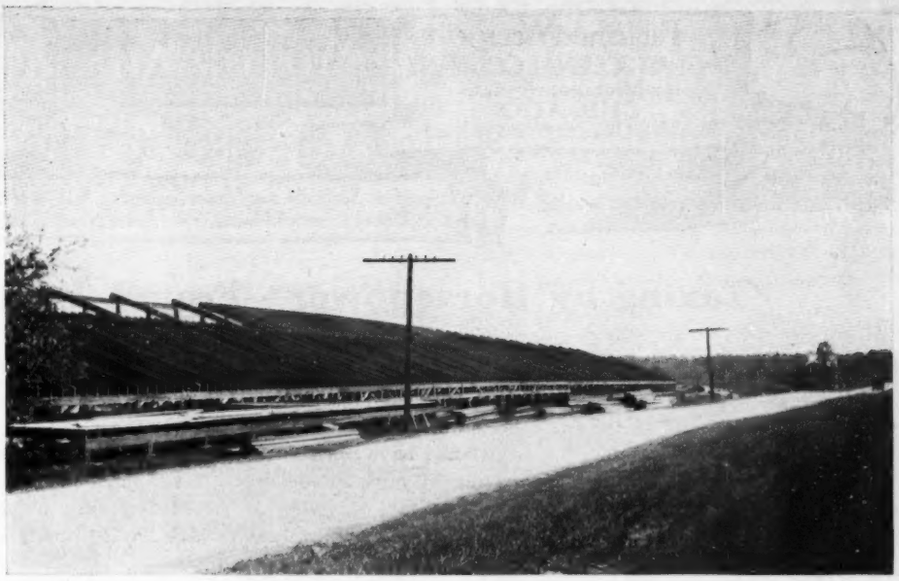
In the Indiana trophy rules the only points of variance are as follows:

1—The Chicago Automobile Club has organized a road race, designated the western stock chassis race for the Indiana trophy, the race to be run over a road course of not less than 230 miles on June 18, 1909.

2—The course known as the Crown Point-Lowell one is, approximately, 23.6 miles in length and shall be covered 10 times during the race, making a total distance of 236 miles.

3—Not more than three cars of any one make can be entered.

9—Competing cars must not have a total piston displacement in excess of 300 cubic inches.



SHOWING PROGRESS OF CONSTRUCTION OF CHICAGO ROAD RACE GRAND STAND

10—Competing cars in running order, but without water, gasoline, tools, spare tires, or parts, must weigh in at the scales, according to instructions which will be published. No limit as to weight is imposed in this race.

FRANKLIN IN CONDITIONALLY

Syracuse, N. Y., May 24—Conditional entry has been made of four Franklins for the Glidden. Two of these are 42-horsepower touring cars. A third is a 28-horsepower runabout, and the fourth, which is to be used as a press car and not as a competing car, is of the same type as the two first named. The condition on which the entries is made is that certain changes shall be made in the rules by which the latter shall be made more definite and specific and at the same time more stringent. Changes in this direction are promised, and it is with the understanding that they will be effected that entries have been filed with the chairman of the contest committee of the American Automobile Association. One of the features of the rules as prepared for which improvement is sought is that the deterioration schedule was not unalterably fixed; it had been left so that a committee up to the actual time of making the ratings of the competing cars after the tour could exercise its own inclination as to whether any particular item of deterioration should be penalized much or little. There is a demand for the absolute fixing of all regulations before the start so that there will be the least possible chance for the rules to be given double interpretation or be decided upon after it is possible to see what the effect of their enforcement as among the several entrants will be. One change advocated is in the establishing of a rule that every part of a competing car shall be equally subject to penalization.

COBE TROPHY

NEWARK RUN POSTPONED

Newark, N. J., May 22—A heavy rainstorm, which has prevailed for 36 hours and is still raging, necessitated the postponement of the 196-mile endurance run of the New Jersey Automobile and Motor Club, scheduled for today. The course laid out is twice around a loop touching the towns of Irvington, Springfield, Chatham, Madison, Morristown, Mendham, Chester, German Valley, over Schooley's mountain to Allemuchy, Tranquillity, Port Morris, Hopatcong Landing, Wharton, Dover, Rockaway, Denville, Fox Hill, Parsippany, Pine Brook, Caldwell, Montclair, Bloomfield, East Orange and back to the club house—the circuit totaling 98 miles. Seventeen entries had been filed.

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Taxing by Horsepower—France Wants Stock Races

A FAVORITE form of legislation this year in many states has been the taxation by horsepower, in which cars of different horsepower are required to pay different amounts, varying from $2 to $24 in some states, to $2 to $8 in other states, to $2 to $12 in a third, and to $2 to $20 in a fourth. Legislators have come to the conclusion that high-powered cars traveling at high speeds are more destructive of road surfaces than other cars traveling at lower speeds. This conclusion is correct. It generally happens that high-powered cars travel faster than low-powered machines, and it is an accepted corollary that high-powered cars are more destructive of road surfaces than low-powered machines. Viewed solely in this light, the horsepower taxation is a proper one, providing the funds secured thereby are used for the improvement and maintenance of roads. On this score, horse-drawn vehicles should all pay a tax, because they are exceedingly destructive on road surfaces and tests conducted last week at New York go to show that the two-horse vehicles in stopping stir up more dust than some motor cars. If horsepower is to be accepted as a basis of license tax for motor cars then the tax should be uniform throughout the country and not a variable one in different states. It is unjust to tax a motorist $8 in one state and $24 in an adjoining state which might not be blessed with such good roads.

THIS taxation problem suggests the absolute necessity of federal control of licensing motor cars, in that it will be impossible for the different states to agree to a uniform rate of taxation. One state will decide on one fee, another will decide on a different fee, and it may happen that a motorist uses a road in other states as much in a season as he does those in his own state. With all of the money collected from car licenses paid into the federal treasury and with this treasury assisting in the construction of national roads, the work of constructing national highways would be more readily carried out and the hope of having a proper system of roads crossing adjacent states at desired points would be more easily obtained. The motor car is essentially a vehicle for inter-state transportation. The radius of horse vehicles is limited, confined generally to a 25-mile radius and more frequently to a 10-mile radius. With motor cars the field of possibilities is only bounded by the ocean at the right, and the ocean at the left, and the limit set by Nature at the south and north. Because of this it is impossible to devise a system controlled by separate states, whereby any system of horepower tax can be required which will be in justice to all parties concerned.

FRANCE has at last awakened and is imitating America. Heretofore France has stood for special racing cars. This policy was dictated by some of the big makers who proclaimed the policy in order to pursue their selfish ends. Now all is changed. French road-racing locomotives have been defeated by the speed creations of Germany and Italy, and now the big French makers are out of racing. They say it is expensive and does not pay. France killed the Gordon Bennett because it did not give what they considered sufficient French car representation. She then created the grand prix, which allowed them the greatest of representation, but she lost this race, and finally has decided to quit. When the big makers felt tired, it looked as if the small manufacturers would continue racing and that the grand prix voiturette this year would prove a successful enterprise. The latest information shows otherwise and that there will not be over half a dozen entries in this race for the reason that it permits any freak designs. One manufacturer has ready a single-cylinder car with 4-inch bore, 10-inch stroke and three intake and three exhaust valves. He has succeeded in manufacturing a phenomenal speed creation and what show have the legitimate stock cars against such a product?

ONE manufactuerr has gone so far in his demand for stock car contests as to declare that manufacturers should be compelled to show the serial numbers of all models constructed, and that a committee should select from the regular stock of parts such component pieces as pistons, crankshafts, connecting rods, gears, transmissionshafts, magnetos, etc. Other manufacturers have agreed on the same course, and it is expected that if France succeeds in having a 1910 voiturette race it will be for stock cars and not for specially-constructed racing machines.

THE route for the 1910 Glidden has been completed, and it would seem from a passing analysis of the course collected that in certain parts, at least, the chief aim has been to keep as far as possible from big motor-selling centers. Several factors have undoubtedly made such a course imperative, and with the task of pathfinding it has undoubtedly been the case of selecting the lesser of two evils. One of the most fruitful car-selling territories of the past year has been the central belt of Iowa, bordering along on either side of the transcontinental route. This is most productive farming land and a large percentage of the agriculturists are wealthy, many of them already possessing cars and some having a couple of machines. It is true, in many cases, small cars have had a big hold in this territory, but present indications show that the car selling from $2,000 to $3,000 is in demand, as well as the lower-priced machine. It would be an excellent step on the part of the A. A. A. if it could include in the itinerary this central belt without having to eliminate the big northern selling field.

A FURTHER suggestion in conjunction with the tour would be adding a day by way of stopover at Denver. According to the present plan Denver will receive but 1 day, and that is Sunday, so that the tourists will have little opportunity of enjoying what must be looked upon as the goal of the 1909 Glidden. If some form of contest were conducted at Denver for the tourists, such as a hill-climbing contest or speed tests, this would not only add greatly to the interest of the tour but would be a valuable factor and one which is invariably taken into consideration in several of the big European tours. Germany always includes speed trials on the flat and speed trials on hills as a part of its annual tour, and last year England made both of these big factors in its 2,000-mile trials. The Glidden tour is now a motor car-selling proposition and everything that will stimulate the interest of the public should be attended to. If Denver were made the scene of such a contest, not only would the population of the city turn out to see the cars, but prospective buyers would be enabled to get an accurate estimate on the condition of the cars after their 1,500-mile run from Detroit.

GIANT'S DESPAIR ATTRACTING THE STARS

Club Decides To Add Special Challenge Event to Hill-Climb Card at Wilkes-Barre, Pa.

WILKES-BARRE, PA., May 24—The contest committee of the Wilkes-Barre Automobile Club has decided to add a special challenge event to its previously-announced program. It is expected that a majority of the free-for-all entrants will come into the special, including the 120-horsepower Benz driven by Bruce Brown; the 60-horsepower Stoddard-Dayton with Bert Miller at the wheel, Denison's 50-horsepower Knox, the Chadwick with Len Zengle up, the 60-horsepower Fiat driven by de Palma, Lewis-Robinson's Panhard, the Simplex, a Matheson and several others. Work has been in progress on the 6,000-foot course all last week, and will be continued up to the day of the climb. Scraping and liberal oil baths are included in the treatment, with the nullification of the water-breaks and banking of the sharpest turns. Wire fences will assist the state constabulary troopers in keeping the course clear, and the usual excellent timing arrangements of former years will, if possible, be improved upon. Willie Haupt, who last year drove the Great Chadwick to the present record of 1:38⅘, will this year pilot a Herreshoff, as will George Robertson, last year's Vanderbilt cup winner. Strang and Burman will handle the Buick entries, while John Dower, who won one leg of the Hollenback trophy last year, will try to annex another with his Corbin.

Scout Reaches Torreon

Torreon, Mex., May 25—After making 156 miles in 13 hours over bad roads the pathfinding Chalmers-Detroit 30 on its trip from Denver to Mexico reached this city last night and is resting today and getting a new guide. This makes a total of 310 miles in 2 days, which is better going than was expected. Had it not been for the experiences of the trip out of El Paso, greater progress would have been made. After leaving El Paso the crew had been fighting against the heavy sand storm with nothing in sight but sand and hills. In attempting to pull itself out of the deep sands cast of Guadaleria pass in the Sierra Blanca desert the car stuck fast. It had encountered a hidden lake and the wheels sank in the quicksand over the hubs. Poles and tackle were useless. So bad was the wind and sand storm that the tent stakes would not take hold in the sand and the fires were blown out. The party was 40 miles from the railroad track and 60 miles from El Paso. The guide at once started to look for a ranch house. He walked 7 miles, finding no sign of life or evidence of a railroad track. Two of the party then scattered to find the track and walked all the way over the mesa and mountains, keeping the north star to their right. One of them dropped exhausted and the other continuing found a Mexican section hand, who provided him with water and took it back to his fallen comrade. This done he returned to the track and caught a Mexican Central train to El Paso. The sufferings of Spooner and Knipper, who remained with the car, were greater than those who went to seek aid. They lived on cold coffee and 3 pints of rusty water taken from the radiator. Their only food was pea soup. As soon as the relief party from El Paso arrived, they found the two nearly starved, having been without food or water for 48 hours. They were taken back to El Paso and on the same day an expedition was sent to release the car, which by this time was nearly buried beneath the sand. The first party was unsuccessful in releasing it and a second expedition had to be sent out. The party has now planned to take a different route to the City of Mexico.

Matheson Given Cup

Washington, D. C., May 22—The Matheson, entered by William Orme and driven by W. B. McBurney, has been declared the winner of class A in the reliability contest of the Automobile Club of Washington, run on May 15. A Packard was originally declared the winner as coming through the contest with a perfect score. A protest was entered against the Packard, entered by the Luttrell Co. and piloted by John Day, and after a hearing before Referee Caverly, 4 points were marked against the Packard for carbureter trouble. A protest was entered with the A. A. A. against the referee's decision in penalizing the Packard but 4 points, as it was claimed the driver worked 31 minutes on the car before he could start it and had the assistance of three men. The controversy was finally settled by the Luttrell Co. withdrawing the Packard, whereupon Orme withdrew his protest to the three A's and was awarded the cup in class A for big cars. The Matheson had 4 points marked against it for the loss of two body bolts. A great deal of hard feeling has been engendered as a result of this contest, due principally to the fact that the contest committee made a number of grave errors in the manner in which it conducted the affair.

MOTORING EVENTS SCHEDULED IN UNITED STATES AND ABROAD THIS YEAR

Endurance trials of the Automobile Club of Ireland, May 26-June 1.

Endurance run of Savannah Automobile Club from Savannah to Augusta, Ga., and return, May 31.

Annual hill-climb, Giants' Despair mountain, Wilkes-Barre Automobile Club, May 31.

Annual hill-climb of the Bridgeport Automobile Club, Bridgeport, Conn., on Sport Hill, town of Easton, May 31.

Show of Barcelona, Spain, June 1-15.

Annual hill-climb of Cleveland Automobile Club on Porter hill, Cleveland, O., June 5.

Kilometer race and hill-climb at Montjeu, France, June 6.

Circuit, Provencal, Marseilles, France, June 6.

Commercial vehicle trials of the Automobile Club of Sweden, June 7-12.

Track and road races at Portland, Ore., in connection with rose festival carnival, June 10.

Prince Henry cup tour, Germany and Austria, June 10-18.

Twent-four-hour track race, Quaker City Motor Club, Philadelphia, June 11-12.

Dead Horse hill-climb of Worcester Automobile Club, Worcester, Mass., June 12.

Catskill-Berkshire endurance contest, New York Automobile Trade Association, June 12-14.

Kilometer trials at Anse, France, June 13.

Endurance run, Philadelphia to Pittsburg and return, Quaker City Motor Club, June 14-18.

Scottish touring car trials, June 14-19.

Annual spring tour of the Maxwell-Briscoe Motor Club. Start from New York. 660 miles: New York, Waterbury, Stockbridge, Newburgh, Delaware Water Gap, Philadelphia, Atlantic City, New York.—June 14-21.

Track meet of Bay State A. A., Boston, June 17.

Stock chassis race for Cobe trophy and light car race, Chicago Automobile Club, June 18-19.

Small car race, promoted by l'Auto of Paris, France, June 20.

Fourth annual endurance run, Albany, Boston, Hartford, Newburg, Binghamton Automobile Club, June 21-26.

Fifth annual tour, Bretton Woods, Portsmouth, Boston, Albany Automobile Club of Albany, N. Y., June 22-28.

Track race meet at Montreal, R. M. Jaffray manager, June 24-26.

Commercial car and military vehicle trials in Switzerland, June 24-July 5.

Track race meet, Point Breeze, N. J., Quaker City Motor Club, June 25-26.

Straightaway races, Motor Club of Wildwood, Wildwood, N. J., July 3-4.

Southern California Automobile Dealers' Association, road races, July 4.

Endurance trials of the Automobile Club of Sweden, July 4-17.

Rochet-Schneider hill-climb, France, July 7.

Start of sixth annual A. A. A. tour from Detroit, July 12.

Motor week of Ostend, Belgium, July 13-17.

Agricultural motor-driven vehicle show at Amiens, France, July 17-26.

Meeting at Boulogne, France, July 18-20.

Annual speed trials of Salon, France, August 29.

Small car trials of the Kaiserlicher Automobile Club, Germany, August 29-September 3.

Mont Ventoux hill-climb, France, September 4-5.

Motoring Carnival of Lowell Automobile Club, Lowell, Mass., September 6-11.

Meet at San Sebastien, Spain, September 7-11.

Start of flag-to-flag endurance run from Denver to Mexico City, September 15.

Semmering hill-climb, Austria, September 19.

Kilometer trials and hill-climbs at Valladolid, Spain, September 27-30.

Gaillon hill-climb, France, October 3.

Commercial vehicle trials, Automobile Club of Austria, October 3-17.

Second annual stock chassis 200-mile race, Fairmount park, Philadelphia, Quaker City Motor Club, October 7.

Industrial and commercial vehicle trials of the Automobile Club of France, October 15-November 15.

Fourth annual midwinter endurance contest, Quaker City Motor Club, Philadelphia, December 29-30.

MATHESON NEARING READING

Block Cup at Norristown

NORRISTOWN, Pa., May 22—The Carris-Franklin combination, touted as a sure winner in class A of the manufacturers' division in the second annual endurance run of the Norristown Automobile Club last Tuesday and Wednesday, was compelled to bow to the superiority of Tom Berger and his Oldsmobile six. True, the margin was a small one—.2 as against 2.1—but it was enough to win the handsome Block trophy, the chief prize of the run. Both cars had performed clean on the road, and it required the technical examination to decide the issue.

Messrs. Ballard, Lewis and De Haas, the members of the committee, were extremely deliberate in their communings, requiring nearly 48 hours to arrive at a decision. Many entrants and drivers were compelled to devote practically a whole week to the run, beginning with the sequestering of the cars in garage on Monday, and the kicks were loud and prolonged. It does seem that in deference to the drivers and others interested—not forgetting the press men—that arrangements should have been made to push the technical examination along continuously and not compel a score or more of men to neglect their business for 36 hours longer than was necessary.

In the small-car class of the manufacturers' division for the club trophy Frank Yerger's Studebaker and Walter Cram's Mitchell were the only clean-scorers on the road. The technical committee could find but 4.4 penalties against the Studebaker, whereas the Mitchell was 37.1 points removed from perfection.

Clean Class A Road Scores

Four clean scores developed in the club contestants' class A—American Traveler 50, George Parker; Pierce-Arrow 50, P. V. Hoy; Elmore 35, Frank Hardart, Jr., and Cadillac 30, J. Ellwood Lee—and as the rules especially stipulated that there was to be no technical examination in this class, the quartet agreed to allow the trophy to remain in the club's possession until an opportunity was presented of running off the tie—probably on next year's run.

The eleven cars which started as noncontestants in class B all finished, and their owners were awarded certificates. They were not bound down to schedules nor were the cars technically examined; they were out for a good time and they had it.

That the big class struggle was a bitter one is evident from the fact that besides Berger's Olsdmobile and Carris' Franklin there were six additional clean road scores turned in. They were Sam Truitt's American Gadabout 50, D. F. Templeton, Jr.'s., Inter-State 35, W. J. Hayes' Jackson 30, F. L. Paxson's Cadillac 30, Charlie Mann's Buick 30 and A. D. Hall's Matheson 50. But whatever may be said of the technical committee speed, no criticism can be made as to their thoroughness.

Although the technical committee decided to keep under cover the separate items which went to make up the technical penal-

RECORDS MADE BY THE CONTESTING MOTOR CARS IN THE

Division 1—Class A

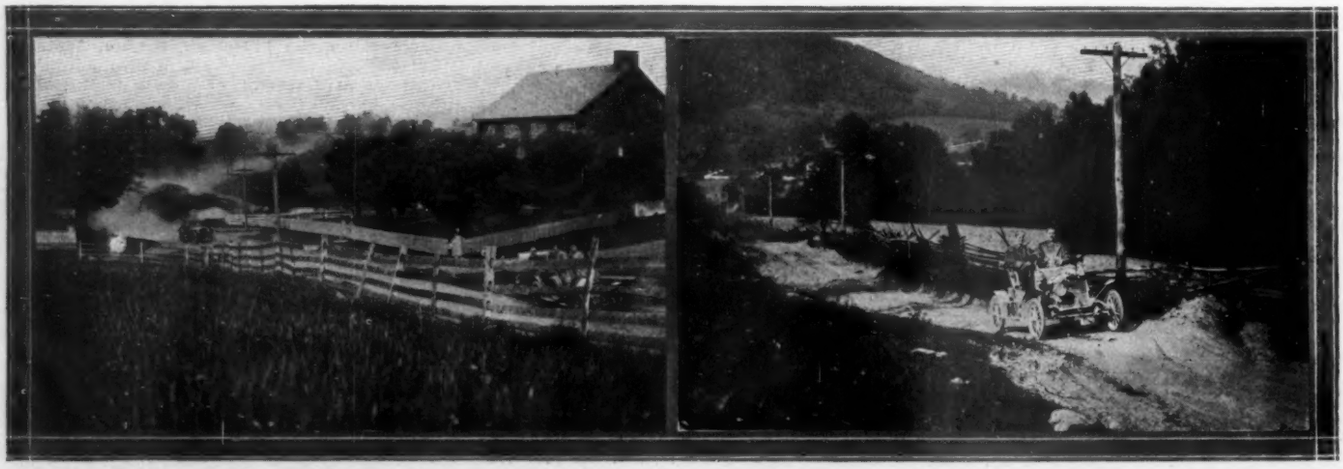
No.	CAR	1st Day	2d Day	Technical	Total	Remarks
1	Regal-Detroit	Withdrawn				Broke springs, but cont'd unofficially
2	Oldsmobile	0	0	.2	.2	
3	Amer. Gadabout	0	0	26.7	26.7	
4	Midland	5	11	34.6	50.6	
5	Inter State	0	0	28.8	28.8	
6	Fiat	0	Withdrawn			Broken axle on Jack's M't'n
7	Jackson	0	0	100.0	100.0	
8	Oldsmobile	43	0	300.4	343.4	
9	Oldsmobile	0	39	6.7	45.7	
10	Cadillac	0	0	30.4	30.4	
11	Kissel Kar	29	Withdrawn			Broke steering knuckle at Harrisburg
12	Buick	0	0	37.8	37.8	
13	Franklin	0	0	2.1	2.1	
14	Matheson	0	0	4.2	4.2	

Division 1—Class B

21	Maxwell	Incomplete	Withdrawn			
22	Mitchell	0	0	37.1	37.1	
23	Franklin	0	42	18.6	60.6	
24	Studebaker	0	0	4.4	4.4	
25	Middleby	Incomplete	97	98.8	186.8	
26	Brush	Withdrawn				Continued unofficially and finished
27	Middleby	Incomplete	48	87.6	135.6	

Special Class

48	Ford	Incomplete				Given wrong schedule, officials called it a draw
49	Ford	Incomplete				



ON THE ROAD OUTSIDE OF GETTYSBURG

ON THE HILLS APPROACHING HARRISBURG

Won by Oldsmobile Six

izations—in which decision they were upheld by Referee Rex—it leaked out that the .2-point penalty imposed upon the winning Oldsmobile in class A, division 1, was for a loose chassis bolt. The 4.4 demerits set opposite the winner in class B of the first division were for loose cylinder nuts and pan bolts. Carris, who as usual finished clean with his Franklin on the road, was close behind the class A winner, his 2.1 technical penalization being for loose spring clips, leaky sight feed and a loose chassis nut. A slight looseness in his steering wheel was the main defect which cost A. D. Hall a total of 4.2 demerits and put his Matheson back into third place. A loose crankcase bolt and a loose steering connection were the main defects which put S. F. Templeton, Jr.'s Inter-State back in fifth place with 28.8 penalties. A broken brake rod and a defect in a rear spring shackle were mainly instrumental in piling up 30.4 penalties against F. L. Paxson's Cadillac, while loose rear axle bearings and a steering wheel with too much play cost Charlie Mann's Buick the bulk of its 37.8 bad marks. H. E. Walls' Oldsmobile passed an excellent technical examination with but 6.7 points registered against, the 39 demerits acquired on the road putting it back into eighth place. The enormous total of 300.4 points registered against Taylor's Oldsmobile was due—all but the .4—to the lost acetylene gas tank which broke loose from the rear of the car coming down the long hill below Pottstown. E. O. Hayes' Midland's leaky radiator was the principal factor in the 34.6 technical penalty registered against that car.

Walter Cram, driver of the Mitchell 30, which was the only clean-score car in class B, division 1—besides the winning Studebaker—to go into the hands of the technical committee, was naturally disappointed when confronted with the 37.1 demerits imposed by that body. The defects which were mainly responsible for the penalty were a damaged rumble seat and a loose steering connection. Crawford's 18-horsepower Franklin, in the same class, came through the technical examination with but 18.6 bad marks, but its 42 points penalty on the road put it back into third place.

FRANKLIN ON THE ROAD

The winning Oldsmobile came through the run unscathed with the same set of Goodrich tires on its 42-inch wheels it had worn on the Harrisburg 4-day run and on its pathfinding trip for the Norristown run.

Last Day of Test

The second day's schedule was much more difficult than that of Tuesday, which was covered in last week's issue of Motor Age. Although still based on a maximum of 20 miles an hour, inferior road conditions and heavier grades made adherence to the official time a much more difficult matter than on the first day. The 35.4-mile control to Gettysburg, the first stop, was over Jack's mountain. Stiff grades, sharp turns, narrow roads—and the dust made the negotiation of the distance in 1

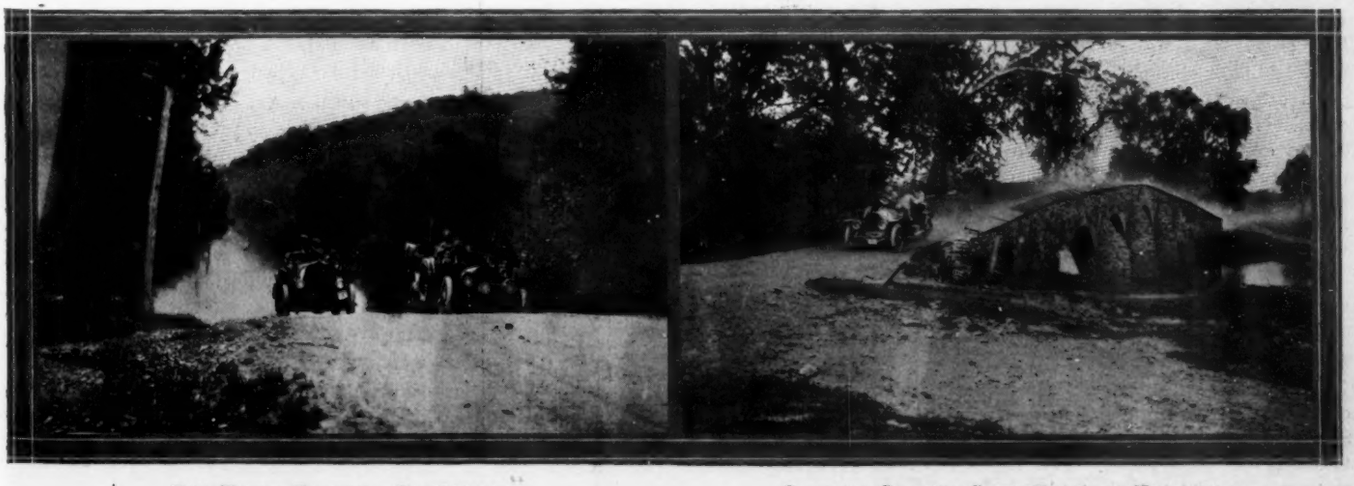
SECOND ANNUAL RUN OF NORRISTOWN AUTOMOBILE CLUB

Division 2—Class A

No.	CAR	1st Day	2d Day	Technical	Total	Remarks
32	Amer. Traveler	0	0	Not examined technically	0	
33	Pierce-Arrow	0	0		0	
35	Crawford	Withdrawn				Did not start 2d day
37	Pope Toledo	0	97		97	
38	Mitchell	0	Withdrawn			Broke torsion rod in Hagerstown
39	Overland	Incomplete				
40	Elmore	0	0		0	
41	Cadillac	0	0		0	
43	Franklin	Incomplete				
45	Chalmers-Detroit	Incomplete				

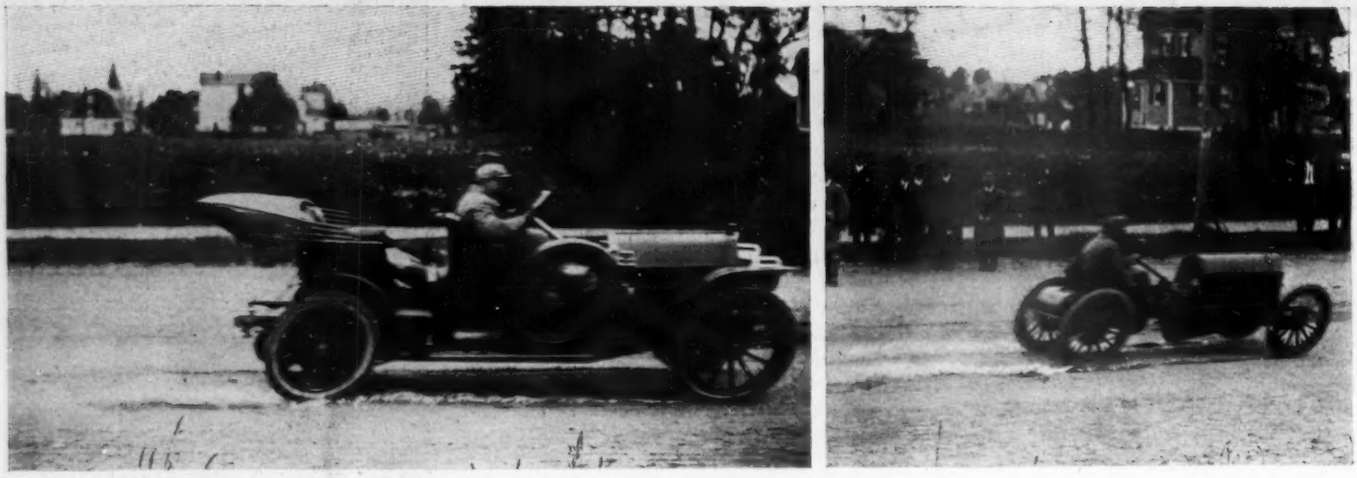
Division 2—Class B

51	Mitchell					
52	Overland					
53	Buick					
54	Overland					
55	Buick					
56	Locomobile					All finished; all awarded certificates
57	Locomobile					
58	Ford					
59	Ford					
60	Overland					
61	Autocar					



POPE-TOLEDO PASSING A LOCOMOBILE

OVERLAND CROSSING STONE BRIDGE AT HARRISBURG



LONG ISLAND DUST TRIALS—SIMPLEX AT 50 MILES AND FIAT AT 75 MILES PER HOUR

hour and 50 minutes—2 hours and 30 minutes for the second division—a close shave for the best drivers and an impossibility for the others. Many road penalties were accumulated right there. The topographical conditions on the Gettysburg-Chambersburg and the Chambersburg-Harrisburg legs were not so pronounced, but the dust was worse.

With no dinner stop either day, the commissary problem was solved on Tuesday by hasty dashes to near-by feederies at the various controls, and at Harrisburg on the second day by the motor club of the capital, which thoughtfully provided box lunches for every one.

Test of the Drivers

On arrival at Reading it looked as if the worst were over; but the crafty contest committee had provided in the Reading-Pottsdam leg what they termed a drivers' test, laying out the confetti over the river road, which parallels the placid but winding Schuylkill and its canal, and which incidentally crosses the latter half a dozen times by means of small bridges, in the 9 miles to Birdsboro. Sailing along over a good but dusty road close to the canal, the drivers were called upon to swing their cars by a short right-angle up the steep driveway, over the short bridge, fairly dropping off the other end, so sudden is the descent, and a quick right-angled turn back to the canal-paralleling road.

As originally printed the entry blanks called for a decision by the technical committee only in the event of two or more clean scores. Chairman Hower, of the A. A. A. committee, whose rules were published later, asked Norristowners to revise their rules accordingly, and they did so, garaging the cars over night and devoting Thursday and Friday to an examination for technical defects.

Troubles of the Cars

The trouble calendar, while remarkably clear the first day, gave the press men in S. de B. Keim's Locomobile something interesting to write about. The Regal Detroit, No. 1, which limped into town the first day with a fence rail doing duty in lieu of front springs, was fixed up with new springs over night and started unofficially in its regular place the second day, coming through without a demerit. Fiat, No. 6, which, although delayed on the start from Norristown, had made up its time, and finished clean the first day, experienced trouble with its radiator on Jack's mountain, on the first control, and lost barrels of time all along the route thereafter. W. J. Hayes' Jackson, which had been given 8 points penalty the first day through a misunderstanding between its observer and a checker, was restored to the clean-scorers when it was demonstrated that the latter had been at fault. Bad checking also gave Taylor's Oldsmobile six, No. 8, 90 demerits for delay caused by its hard luck in running out of gasoline coming over the mountains from Frederick to Hagerstown. A protest resulted in a reduction to 43 bad marks. Next day the referee stopped below Pottsdam to pick up an acetylene gas tank which had been lost in the road. It proved to be No. 8's. The Oldsmobile four, No. 9, driven by H. E. Walls, had trouble with its carbureter inlet valve, and thus negatived his first day's clean record.

Kisselkar, No. 11, just after clearing the Harrisburg control, had a collision with a team that shot out of a side street. The result was a broken steering knuckle, and the dumping of the whole outfit into the street. Observer Kirkbride came off the worst, losing several of his front teeth. Driver Rodgers and L. R. Aschenfelter were temporarily knocked out, but suffered only a bad shaking up, while the car was sent to a Harrisburg repair shop. W. C. Longstreth's Maxwell, Jr., No. 21, in addition to a mixup between observer and driver as to delays caused by tire repairs on the first day, suffered a repetition of the annoying delays on the homeward trip.

Plucky Drive in Brush

The little Brush, which had been reported as having retired from the run, put in an appearance at Hagerstown at 4:30 Wednesday morning. A loose connecting rod bearing had developed trouble which could only be remedied by a new part. The car was then near Hanover, and a wire was sent back to York for the needed part, which did not arrive till 7 o'clock in the evening. Bussa, the driver, set to work and finished the job long after dark, leaving Hanover at 9:50. The little car, although delayed by tire trouble, did the 206 miles to Norristown before dark.

Call It a Draw

The special class, with Fords Nos. 48 and 49, was put on by the committee to settle a long-mooted discussion as to the relative merits of the cars of W. Perry Gresh and Joseph Graham. Gresh put Van Peacock at the wheel of his car, while Graham elected to do his own driving. All went well the first day, with the advantage, if any, lying with Graham. On the second day, through an error, Graham was handed a first division schedule, while Peacock received the proper schedule, that for the slow class. The mistake didn't feaze Graham, however, for he adhered to his time throughout, and finished over an hour ahead of his rival. Both were clean, but when Peacock claimed that Graham should be penalized for early arrival he showed his card. The onus was then on the officials, who later in the evening called it a draw and declared all bets off, which satisfied everybody.

Fight in Class A

A hard fight for the honors developed in class A of the second division, which was open to Norristown members and those of any allied A. A. A. organization. This class was not compelled to undergo a technical examination. They carried observers, however, and ran under first division rules, subject to the slow time schedule of the smaller cars in the manufacturers' class. A. H. Roop's Crawford, No. 35, was withdrawn at Hagerstown, and B. E. Block's Mitchell, No. 38, was compelled to follow suit, breaking a torsion rod by butting a high curb while maneuvering to get into position for the second day's start.

UNCLE SAM HOLDS BRAKE AND DUST TRIALS

NEWARK, N. J., May 20—Logan W. Page, director of the office of public roads of the United States department of agriculture, conducted here today a series of brake and dust trials on a stretch of Hillside avenue from Jamaica, L. I., for the purpose of determining the shearing effects of the rear or driving wheels of a motor car at different speeds and also when stopping. The test also included one and two-horse vehicles, equestrians and motor cycles. The tests were conducted with the assistance of the American Automobile Association and a corps of associate scientists as well as a phalanx of photographers stationed along the course to take the photographs of vehicles at different speeds. A moving picture machine also was there. An electrical chronograph was used for timing the vehicles over different stretches of the road. The dust tests included driving cars at speeds from 10 to 77 miles per hour over the road and in the brake trials vehicles were driven at speeds ranging from 10 to 40 miles per hour.

The complete results of the brake trials are shown in a table on this page in which contest a White steamer, model 30, made the best showing, stopping in 31 feet at 20 miles per hour, 53 feet at 25 miles per hour, 74 feet at 30 miles per hour and 140 feet at 40 miles per hour. A 50-horsepower Simplex stopped in 10 feet, traveling at 10 miles per hour, and 149 feet at 40 miles per hour. A six-cylinder Peerless limousine stopped in 151 feet when traveling at 45 miles per hour. The contrast afforded between horse and motor vehicles in stopping was particularly interesting. A single-horse vehicle required 39 feet to stop when going 10 miles per hour, which is practically the distance required for the 50-horsepower Simplex. When going 18 miles per hour the vehicle required 55 feet. The two-horse vehicle stopped in less distance than the one requiring 27 feet when traveling 35 miles per hour. The motor cyclists did not make such a good braking record as the motor cars, requiring 51 feet at 20 miles per hour, and 157 feet at 40.

There were thirty-six tests involving speed, taking into account the several makes of tires, and with an idea of judging of the amount of dust made photographs were taken from all angles. The White steamer, with tires on the rear wheels in which the word "Firestone" was embossed, had the advantage of excellent traction, and at the same time it was not actually necessary to use chains. In the severe brake tests that followed the speed tests, it was adequately indicated that the tread of the tires was not damaged, although, of course, the tread did indent the roadbed when the steamer, going at 40 miles an hour, came to a dead stop inside of 140 feet, and again when going at 30 miles the car came to a stop in 74 feet.

In the speed trials when chains were applied it was expected that they would do much damage relatively, and it came as a surprise to the observers when it was found that the chains had no such effect at all. As a matter of fact, the chains did not damage the road as much as smooth tread tires when the speed of the car was high enough to cause slipping to a considerable extent. It was the common belief, taking such evidence as was afforded, that under ordinary conditions chains do not damage the roadbed, and when the speed of a car is high, in the absence of some such equivalent as a lettered tread, the chains would seem to be an actual advantage from the point of view of the maintenance of the road. At least so the observers thought.

On the whole the tests were a little tame during the speed trials, and it was not until the brake tests were put on that the large party of road-builders and motor engineers essayed to become particularly interested. It was not anticipated that so much good information could be had in the simple process of trying out cars for the purpose of determining the distance in which they could be brought to rest. Nor was it supposed that a mounted policeman going at 25 miles per hour would experience difficulty in stopping his horse inside of 152 feet. But mounted policeman No. 3815 failed to do better, and he made a splendid run of it, being a veteran of the United States cavalry, finely mounted, and a horseman beyond question. This same officer, going at a rate of 10 miles per hour, came to a stop inside of 17 and 12½ feet respectively, as the result of two trials.

Nothing definite has been announced regarding the dust trials except that photographs were taken at speeds of 10, 20, 30, 40 and 50 miles per hour with higher speeds made by two cars, the 50-horsepower Simplex traveling at 71 miles per hour and the Fiat Cyclone at 78. It is the intention of Director Page to make a careful study of the photographs, as well as the films of the moving pictures and figure out mathematically the dust propensities of vehicles at different speeds. In order to make the test still more searching the cars were equipped with different types of tires—some with smooth tread, others corrugated, and some with anti-skid chains.

RESULTS IN THE BRAKE TESTS ON LONG ISLAND

M.P.H.	Simplex Fifty	White 30 Steamer	Peerless Lim. 6-Cylinder	Indian Motor Cycle	Horseback Rider	1-Horse Vehicle	2-Horse Vehicle
10	10 feet	..	..	..	12-5 feet	39 feet	27 feet
12	..	..	..	..	..	..	33 feet
18	..	..	..	..	..	55 feet	..
20	42 feet	31 feet	65 feet	51 feet	..	..	..
25	70 feet	53 feet	..	..	152 feet	..	..
30	109 feet	74 feet	96 feet	..	..	..	..
40	187-149 ft.	140 feet	151 feet	157 feet	..	..	..

LONG ISLAND BRAKE TESTS—WHITE STEAMER AND TWO-HORSE VEHICLE

COAST ENTHUSED BY SANTA MONICA RACES

LOS ANGELES, CAL., May 21—What promises to be the best stock car races ever run on the coast will be held over the Santa Monica course, 15 miles from Los Angeles, July 10. To refer to the contests as the best of their kind is a strong statement, but when the list of entries, the course and the prospect that fully 100,000 people will gather for the races are considered the statement seems warranted. Entry blanks were sent out today and already eight entries are assured for the small-car race, and fully sixteen will start in the large-car event. As the course measures only 8.2 miles to the lap the rules will limit the number of entries to sixteen. Over twenty cars have been named and there is certain to be a number of disappointments. The race is being held under the auspices of the Automobile Dealers' Association of Southern California, and as the rules restrict the entries to members of this association the Fiat and the Chadwick six will not be able to get in. Both are represented by newly established agencies. Among the cars pledged for the small-car race are the Stoddard-Dayton, Cadillac, Maxwell, Buick, Chalmers-Detroit, Regal, E-M-F and Oakland. In the big car race there are applications from the Apperson Jackrabbit, Stoddard-Dayton Sixty, Stoddard-Dayton Forty-five, Chalmers-Detroit Forty, Packard, Columbia, Franklin six, Buick, Rambler, Premier, Pope-Hartford, Matheson, Lozier, Thomas, Stearns, Peerles six, Studebaker, Oakland, Haynes and Tourist.

It seems an absolute certainty that the big-car race will be filled. Dick Ferris has offered a $1,000 cup for the event and the trophy is now being made. The committee in charge of the race is composed of Ralph C. Hamlin, Leon T. Shettler, D. M. Lee, W. K. Cowan and W. E. Bush. Frederick Pabst is secretary to the committee. All preliminary arrangements have been made and work has been started on the course.

The course selected starts on Ocean avenue, which overlooks the Pacific ocean. Spreading out along the coast to the south are the string of pleasure piers, while pointing its nose out into the ocean on the north is Port Los Angeles. The grandstand is on the inside of the course and will face the ocean. The city of Santa Monica has given the association control of the city park along the bluff overlooking the beach and this will be used for parking the cars. The first grandstand will seat 5,000 people with two rows of boxes along the front. Additional grandstands will be constructed to accommodate 10,000 more. People from Los Angeles can reach the course on electric cars and the company is preparing to carry 50,000 people from this city alone. The race comes 1 day before the annual meeting of Elks begins and there will be over 30,000 members of the lodge here on the date of the run.

Three-quarters of a mile south of the grand stand is the first turn. It is a perfect right angle, and to add to the speed of the race this turn will be banked to allow cars to go around at a speed of 50 miles an hour. After a straight run of 3 miles over a road broad enough for ten cars to run abreast there is another sharp turn onto the Palisades boulevard at the Soldiers' Home, the largest in the United States. At present this is almost a hairpin curve, but the plan is to cut it down considerably. The other turns back to the starting point are little more than slight bends and can be taken at a very high rate of speed. It is being freely predicted that the average for the race will be close to 60 miles an hour. The distance will be 205 miles in each race.

FOREIGN CARS BARRED

Philadelphia, Pa., May 25—At the last meeting of the board of governors of the Quaker City Motor Club, of Philadelphia, twenty-two new names were added to the membership roll. As the limit of membership has almost been reached, Secretary Harbach believes a waiting list will be in order before the big Fairmount park 200-mile stock chassis race next October. In considering that event it was decided to confine entries to American manufacturers, no car built abroad being eligible, whether owned in this country or not. Chairman Bartlett, of the law and ordinance committee, reported that the codification of the Pennsylvania and New Jersey laws was in the hands of the printers and would be ready for distribution in a few days. The itinerary of the cross-state highway endurance run, June 14-18 next, has been issued, showing a mileage of 412.2 to Pittsburg and 338.3 for the return trip, a total of 750.5 miles, with overnight stops at Williamsport, Johnstown, Pittsburg and Lewistown. Chairman Lewis, of the orphans' day committe, reported cars sufficient to accommodate 250 up to date, and urging every member, if he cannot assist personally, to at least loan his car, the club promising to secure drivers.

NEW ST. LOUIS ORGANIZATION

St. Louis, Mo., May 24—The new Motor Accessory Association, of St. Louis, Mo., which organized temporarily 2 weeks ago, has perfected a permanent organization and elected these officers to serve for 1 year: A. N. Stanley, of the Fisk Tire Agency, president; John J. Behen, Behen-Faught Motor Car Equipment Co., vice president; Thomas Benoist, Benoist Brothers Mfg. Co., secretary, and Clifford L. Garrison, Phoenix Auto Supply Co., treasurer. The executive board elected includes the officers named and R. H. Coombs, Robert E. Lee and M. W. Doyle. The association starts with a membership of twenty-seven firms and has a possible membership of seventy-five. The purpose of the organization is mainly to regulate certain conditions in the local trade, chief among them credits. A credit bureau in charge of the secretary is to be established within the next few days.

WHITE MAY USE KEROSENE

Cleveland, O., May 24—The official announcement has just been made that kerosene may be used as fuel in the 1910 models of the White steamer. The White company states it practically can dispense with gasoline. It will still be necessary however, that a White car be provided with a small supply of gasoline for use in the pilot light, but the quantity so used is negligible and a very small amount will last for several hundred miles. The White company has been working ever since it commenced to manufacture cars on a kerosene burner, but it was not until the last few months that it was developed to the point where the company felt that it could recommend kerosene as fuel for its cars. An important feature of the new burner is that it may readily be adjusted so as to burn gasoline if for any reason it is desired to use the latter fuel.

EDGE VISITING AMERICA

New York, May 24—S. F. Edge, head of the English concern marketing the Napier, is reported to have sailed from Liverpool on the 21st for a visit to the United States. This will be Mr. Edge's first visit to this country and plans already are under way to entertain him while here. Chicago already has sent him an invitation to watch the running of the Cobe cup race June 19. Mr. Edge has engaged quarters at the Waldorf.

BIG CLIMB FOR CLEVELAND

Cleveland, O., May 24—With practically twenty entries already in hand, the indications point to the most successful Cleveland hill-climb in recent years. Coming on June 5, the date appears to be acceptable to everyone. For the first time since 1907 the White and Stearns will clash, and the Chadwick six, the new 60-horsepower Stoddard-Dayton and the big Knox will all meet in the free-for-all. The American Simplex is also expected to run as a dark horse in this event. Porter hill is a straightaway ½-mile hill, offering exceptional advantages to both cars and drivers. The Cleveland Automobile Club is leveling the roadbed and removing all water-breakers. The annual 2-day run of the Cleveland Automobile Club will be held to Cambridge Springs and return this year on May 30-31. Dinner will be served at the Springs Sunday, the 30th, and the return will be made the following day. Owing to the fact that Decoration day falls on Sunday, the 31st has been declared a legal holiday, so no time will be lost on the trip.

'FRISCO PLANNING ANOTHER ROAD CARNIVAL

SAN FRANCISCO, CAL., May 17—California, so long behind in the matter of road races, bids fair now to make up for lost time. The success of the 52-mile road race at Santa Rosa a week ago has aroused the greatest enthusiasm among the motorists of the city, and has served to stir the motor car organizations to action. As a result it seems probable that the next 3 months will see two big road races in Alameda county, across the bay from San Francisco.

The conservative old Automobile Club of California awoke today from a long sleep and announced that if proper arrangements could be made it would hold a 200 or 300-mile race in Alameda county in September. Chairman A. B. Watson of the executive club has already found a fine course 23 miles in length, and all that now remains to be done is to secure the consent of the Alameda county supervisors, and the assistance of the governor, who will be asked to permit the use of the state militia to guard the course. Discussing the plans of the club, Chairman Watson said:

"The Automobile Club of California has for the past couple of years had tentative plans for a road race that will be to the west what the Vanderbilt cup race is to the east, although along somewhat different lines. We will not admit any strictly racing cars and will demand a stock chassis. Given that, however, the entrant may then fix up his car in the matter of gearing and other things as he pleases. We do not want any freak racers, but the big, powerful cars can go at it the best way they know how to develop the highest speed. We will exclude the smaller type of cars by fixing a limit of cylinder measurements or in some other way. Thus there will be no small cars, which have no reasonable chance of winning, scattered along the road to get in the way of the big machines.

"The course I have in mind is a beautiful one for such a race. It starts at the limits of Oakland and runs almost in a straight line 11 miles to Haywards, where it turns sharply to a boulevard not far distant. This boulevard is almost like a billiard table in its smoothness, and it gives another fairly straight shoot of 11 miles back to Oakland. Somewhere along one of these stretches the club will erect a grandstand so that the spectators may see the cars running at their highest speed over an ideal course.

"The convenience of the course to big centers of population means that we could get an immense crowd out to see the race. San Francisco has always shown the deepest interest in motor racing, sending many thousands to the track meets that have been held here, some of which have had too little merit. With its population of almost half a million people, the city may be expected to send a very big crowd across the bay for the first great road race ever held in this state. In Alameda county, in the immediate vicinity of the course, there is perhaps 400,000 more population upon which the race would draw. Under these conditions the attendance ought to be very large. Already, although the race is 3 months off, the greatest interest is being displayed in Alameda county. The merchants of Oakland have offered to provide a trophy of a value not less than $500, and to do everything else in their power to help the race. We are allowing 3 months for proper preparations to be made, and nothing will be left undone that might tend to the greatest success of the project."

The San Francisco Motor Club also has a plan for a big road race in Alameda county. The motor club was organized only a few months ago, largely through the instrumentality of W. R. Johnston, a former Chicago man. It has conducted several events very successfully, its last effort being the recent 52-mile road race at Santa Rosa. At the beginning of the season, in outlining its program the motor club scheduled a road race for this summer, and there are no indications that it will be abandoned, even though the Automobile Club of California carries through its project for a race. It is more than likely that the motor club will hold a road race of considerable length in Alameda county during July, probably on the Fourth. Secretary Johnston said that this was the programme adopted by his organization and that he saw no particular reason to change it. And so California may look forward to two big races during the next few weeks.

JOBBERS ORGANIZING

New York, May 24—A call is out for a meeting to be held June 10 in either Buffalo or Cleveland for the purpose of forming a jobbers' association, those signing the document being the Excelsior Supply Co., of Chicago; the Motor Car Equipment Co., of New York, and the Post & Lester Co., of Harvard, Conn. David J. Post, of the last-named concern, is looked upon as the main organizer, a letter sent out by him pointing out that inasmuch as the motor car and sundry makers have been organized for offensive and defensive purposes, it would be best for the jobbers to fall in line and do likewise. So it is probable some such action will be taken.

GOPHERS CHOOSE A ROUTE

Minneapolis, Minn., May 24—The contest committee of the Minneapolis Automobile Club chose the Minneapolis-Duluth route for the annual Tribune reliability and economy contest to be held August 17 and 18. The rules which governed the run a year ago were revised somewhat, but in the main are the same. Following the lead of the Chicago Motor Club and other organizations, the penalization for breaking a seal was lessened considerably. Last year it was 25 points for breaking a seal, regardless of the work to be done, and this has not been changed to 5 points for the breaking of the seal and then the customary fine figured at so much per minute per man for work done. There will be four checks on contestants each of the 2 days of the run, one on leaving the club headquarters at the Plaza hotel, one on arriving at Sandstone, the noon control, one on leaving Sandstone and one on reaching the club garage in Duluth. The same program of checks will be followed the second day of the run. There will be four classes as follows:

Class A, over 41-horsepower touring cars.
Class AA, over 41-horsepower roadsters.
Class B, 31 to 40-horsepower touring cars.
Class BB, 31 to 40-horsepower roadsters.
Class C, 21 to 30-horsepower touring cars.
Class CC, 21 to 30-horsepower roadsters.
Class D, under 20-horsepower and including motor buggies having wheels in excess of 40 inches.

The committee will furnish road maps and mileage at all turns with road notes. There will be between thirty and forty cars in the run and the test ought to be one of Minneapolis' usual successes.

HOOSIER SPEEDWAY PLANS

Indianaolis, Ind., May 24—Plans have been made for the first motor meet on the new speedway and an August date has been selected. The first day will be given over to record trials and short distance races. On the second day the feature will be a long distance event for stock chassis for the Prest-O-Lite trophy. The third and final day there will be more sprints and a special purse for the fastest mile. The windup will be the long distance race for the Wheeler & Schebler trophy, valued at $5,000, which will be at from 350 to 450 miles. In September it is planned to have a 24-hour race and in October the long distance race, which will be run over the combined speedway and inside course.

ST. LOUIS CARNIVAL DELAYED

St. Louis, Mo., May 25—The St. Louis Automobile Manufacturers and Dealers' Association has been forced to abandon its plans to hold a spring motoring carnival, owing to the failure of the Missouri state officials to issue it a charter. Only a short time ago the association incorporated, and began at once to arrange for a big spring meeting. Just why the state delays in granting the charter cannot be learned, although a committee has written the state secretary asking that some action be taken or an explanation given. As matters stand the members wish now they had not decided to incorporate. In fact, the body, under present conditions, is powerless. The officers cannot officiate until the charter is received, nor can the association as a whole take any binding action. The members will try to give their carnival in the fall.

PERFECT SCORES NUMEROUS AT HARTFORD

MACDONALD IN THE MAXWELL

HARTFORD, CONN., May 24—Fifteen out of twenty-six cars that competed in the second annual reliability run of the Automobile Club of Hartford Saturday made perfect scores. Weather conditions were against good work, the contest starting in a heavy rain. The test was 211 miles in length over an out-and-home course. The first leg was from Hartford through New Britain, Meriden, Southington, Plainville, Farmington and back to Hartford, 46 miles. The second lap was to Manchester, Rockville, West Stafford, Thompsonville, Windsor Locks and back to Hartford, 57 miles. The third lap took in Glastonbury, Colchester, East Hampton, Middletown and Hartford, 56 miles and the last leg went through Tariffville, Granby, East Hartland, New Hartford, Avon and Hartford, 52 miles.

Stock Car Proposition

It was a stock car proposition throughout, there being five classes. Observers were changed each time at Hartford. The scheduled running time of class B exceeded class A 20 minutes; class C exceeded class A 40 minutes, class D 60 minutes and class E 80 minutes. A point a minute was debited for arriving late at a control, while the same rate prevailed for stoppages on the road exceptions, however, being made for traffic congestion and to avoid an accident. Motor stops also were penalized a point a minute.

The report of the judges makes the Renault winner of class A. In class B the Knox, American, Stoddard-Dayton, Franklin six, Corbin and Rambler had perfect scores. In class C two Ramblers and a Buick were clean. In class D a Maxwell, Chalmers-Detroit, Buick and Inter-State were adjudged perfect, although today a protest was lodged against the Inter-State, it being charged that its oiling system had been repaired. In class E a Maxwell Junior was the winner. Since the first report of the judges the clean score given driven by Lorimer had tire trouble and Mertens driving the Coffin Columbia ran shy of gasoline in Enfield. Mertens once under way again ran away ahead of schedule and was taxed 34 points.

First Two Legs Easy

With the first two legs easily negotiated the contestants took ½ hour lay-off for lunch. With the rain falling at frequent intervals it looked bad for the hard run through the Colchester hills. With all the cars under way for the third leg, careful driving was necessary. From Hartford to Glastonbury the roads are macadam, but here the route was across country over dirt and sand roads. Between

F. L. MILLS' INTER-STATE, ONE OF CONTESTING CARS

The fourth lap of 54 miles might well McCormick's Pierce-Arrow has been taken away, and 1 point penalty given it for being late at a control. The No. 8 Mitchell's penalty was jumped to 40 points for taking on oil and water outside of controls. The entrant of No. 13 Corbin has protested the penalty given it for a stalled motor.

Bourque in the Knox had tire trouble in Plainville on the first lap for which he was not docked. The entrance to Farmington was through deep ooze and mud. The first leg of the run was completed with all perfect scores. All cars checking in were sent away for the second lap of 57 miles and the Jackson, Lazaro driving, which failed to appear for the start of class D for the first lap, was allowed to drive over the first leg and later the second and third, which were done with a clean score though it availed the car and driver nothing. The second leg was over good macadam to Manchester, from which point on the roads are sand and dirt. From Manchester to Rockville there was more or less mud.

A snail's pace was exacted across the bridge over the Connecticut to Windsor Locks and here the procession was balked by a long freight. The Chalmers Westchester and Cobalt the going was very bad and from Colchester to Westchester numerous long, steep, rough down grades were encountered. The Buick driven by Hooker had timer trouble on this lap and was withdrawn from the contest. Denison and the Knox, hitherto perfect, accidentally slipped his foot from the accelerator pedal while the motor was working hard on an upgrade with a string of cars following. The motor stalled, which cost him 1 point. Lorimer in the Chalmers stalled his motor and lost 1 point. Miner in the Pierce had ignition troubles which robbed him of his clean slate up to this lap. Smith in the Mitchell had troubles with his oiler and found it necessary to stop and take on water near Middletown, for which he was penalized. The Columbia driven by Currier suffered a stalled motor and was taxed accordingly.

Find Good Macadam

From Portland to Hartford the run home was easy over good macadam. At Rocky Hill the cars were forced to take the dirt road, the main highway being in a state of repair. The third leg was a hard one and the work of the cars and drivers was remarkably consistent.

The fourth lap of 54 miles might well have been the whole test, for it was terrific and the beautiful scenic country a mockery. Leaving the macadam at Bloomfield the cars took to the deep mud and mire, made worse by the town authorities, who had recently pared off the edges of the road and thrown the loose turf and dirt into the center of the road. The first car through plowed two deep furrows and all following tracked accordingly, meantime making the ruts the deeper. Deep pools of water were everywhere. Men and cars were covered with mud. A stretch up grade of nearly 1½ miles proved a severe test. The road was of soft dirt and into which the cars sank heavily, one after another. Then there were numerous steep descents and how the cars ever got through clear is a wonder. S. A. Miner had more ignition troubles in the Pierce. Rankin had fuel troubles but by clever headwork came through safely. Lorimer in the Chalmers again stalled his motor. Smith in the Mitchell had more oil troubles, and tires suffered much. The run up the mountain was terrific and on the summit the fog was so dense in some places that one could not see ahead 200 feet. The cars bounced, brakes groaned under the stress and underpans were hammered by contact with the ground. Reid in the Columbia suffered a broken motor oil pipe which put him out completely. The baby Maxwell followed later than the big fellows and tires had to be repaired in the dark. Harry Hart in the American was running well, but had his share of tire trouble and Tuttle in the Stoddard-Dayton was hung up nearly an hour from the same cause. Once the hard descent down the mountain was made the valley opened up with the usual medley of mud and water.

RESULTS IN HARTFORD CLUB'S RELIABILITY RUN

Class E—Cars Listed at $999 and Under

Name of Car	Cyl. Bore	Piston Stroke	Car Model	Driver	Remarks	Total
Maxwell	4	4	A	C. Goldthwaite	Late at Control	10
Buick	3¾	3¾	10	D. C. Hooker	went only three laps	

Class D—Cars Listed at $1000 to $1750 Inclusive

Maxwell	4¼	4¼	K	J. Macdonald		Perfect
Chalmers-Detroit	3⅞	4½	F	F. F. Cameron		Perfect
Inter-State	4½	5	26	F. L. Mills	Protested	Perfect
Buick	3¾	3¾	10	R. Miner		Perfect
Mitchell	4¼	4½	K	B. F. Smith	Taking on oil and water	40
Jackson	4½	4½	H	E. Lazaro	Went only three laps	

Class C—Cars Listed at $1751 to $2450 Inclusive

Rambler	4½	4½	44	E. W. Williams		Perfect
Rambler	4½	4½	44	J. E. Brennan		Perfect
Buick, 2-cyl.	4½	5	6	D. C. Lull		Perfect

Class B—Cars Listed at $2451 to $3750 Inclusive

Knox	4⅞	4¾	O	W. Bourque		Perfect
American	5¼	5½	R	H. A. Hart		Perfect
Stoddard-Dayton	4¾	5	K	H. Tuttle		Perfect
Franklin six	4¼	4	H	J. Burns		Perfect
Chalmers-Detroit	5	4¾	E	D. Rankin		Perfect
Corbin	4½	4¼	O	S. Goss		Perfect
Rambler	5	5½	45	S. E. Campbell		Perfect
Corbin	4½	4¼	O2	P. Corbin, Jr	Stalled motor	1
Knox	4⅞	4¾	O	A. Denison	Stalled motor	1
Chalmers-Detroit	5	4¾	E	L. B. Lorimer	Stalled motor	2
Columbia	4¼	4½	48-3	H. Currier	Stalled motor	2
Columbia	4¼	4½	48-3	E. R. Mertens	Ahead of schedule	34
Columbia	4¼	4½	48-3	F. T. Reid	Withdrawn fourth lap	

Class A—Cars Listed at $3751 and Upward

Renault	4	5¾	A I	G. E. Sykes		Perfect
Pierce-Arrow	4¼	4½	4-30	R. H. MacCormick	Late at control	1
Pierce-Arrow	4½	4¾	4-45	S. A. Miner	Ignition trouble	34

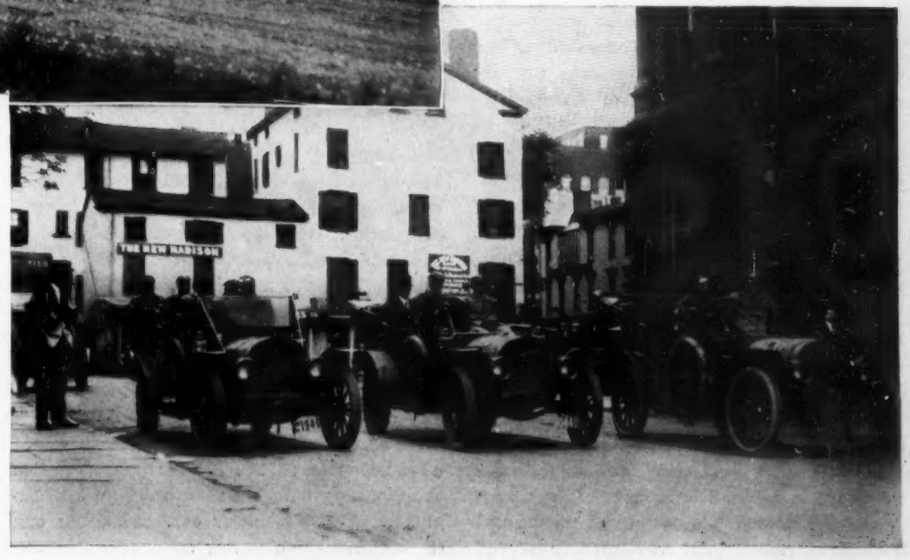
HARRY HART IN AMERICAN

Tackling Avon Mountain

Rain was falling hard during the last lap and a cold wind was blowing. Once on the approach to Avon mountain the cars opened up for a burst of speed and those who stood at the top of Avon mountain saw some real excitement. Rankin in the Chalmers running to make time was over the summit speeding for home before his followers were half way up. From Avon mountain down the slope to West Hartford the roads were wet and treacherous, but once in West Hartford macadam was found.

Macdonald in the Maxwell hustling to reach control on time smashed in the spokes of the Maxwell 28-horsepower runabout, but was able to finish with a clean slate. The Campbell Rambler took on gasoline at Tariffville on the sanction of the observer.

There was a hoodoo present in No. 13. Philip Corbin carried it on the Corbin runabout and stalled his motor, costing him 1 point. The Maxwell Junior made the four laps without trouble other than tires.



TRIO OF RAMBLERS WITH PERFECT SCORES

ENGLISH BUDGET SCARES THE MOTORISTS

LONDON, May 11—Rarely, indeed, if ever, has an industry been struck such a crushing blow as that which Lloyd-George, the English chancellor of the exchequer, dealt the British motor industry in his recent budget speech. In motoring circles the announcement of the fresh imposts created a close approximation of a panic, and even now when the real idea and basis of the proposal has had time to be thoroughly digested and the situation reviewed soberly, it is apparent that the fresh taxation has given rise to the very gravest discontent and it is feared that a crisis is at hand.

It must be remembered in considering this question that the British motor industry started under a severe handicap, not only inasmuch as the French, American and German manufacturers were years ahead of the Englishmen, but also because the free trade policy of the British Isles threw the home market open to every comer. That the English manufacturers have managed, as it must be admitted they have, to pick up this tremendous leeway in a comparatively short space of time is little short of marvelous, and it is but natural that the immense efforts they have made have left them in a by no means strong state.

The increased tax on horsepower is undoubtedly justifiable and is only to be assailed on the grounds that it will ruin the second-hand car market. A man who buys a second-hand 60-horsepower car, which he is likely enough to pick up for $2,000, will balk at the $200 duty he must pay on it, and certainly a 10 per cent impost is very heavy. On the other hand, it is extremely probable, in fact, in some quarters it is looked upon as settled that the government will accept the R. A. C. horsepower rating formula

$$\frac{D^2 N}{2\text{-}5} = \text{horsepower}$$

as equitable, in which case it will simply be a case of unduly developing stroke. One manufacturer is reported to have already made plans for an engine of 4-inch bore and 24-inch stroke, single-cylinder, which he promises to develop 40 horsepower, a not unlikely figure judging from the voiturette grand prix winner of last year, which with a single 4-inch bore cylinder, with 9-inch stroke, gave nearly 30 horsepower. In this connection it is worth noting that the winner of the recent voiturette contest in France had three exhaust and three inlet valves in the head of his single-cylinder engine.

The third tax, on every gallon of gasoline, is, however, more than flesh and blood can bear. For some time the gasoline distributors in London have been selling at a price which left little margin of profit, and they have seized upon the opportunity of clapping another penny on every gallon. Thus 3 weeks ago the standard price in London was 25 cents per gallon, it is now 35 cents, an increase of no less than 40 per cent.

Doctors and commercial cars and theater buses will pay half this tax, but even so, the last named is doomed. A London motorbus company which in the past has had the greatest difficulty in scraping up a dividend at all, consumes 6,000,000 gallons of gasoline per annum, and it is calculated that under the new tax it will have to pay away no less than $285,000 to keep its buses running. To add to this trouble Scotland Yard has recently pronounced its opinion that the present type of vehicle is unsuitable to its requirements and the companies must therefore lay down completely new rolling stock. The taxicab driver is also hard hit, as he must pay for his own gasoline, while he is prevented by an act of parliament from raising his fare. It is therefore clear that many townsfolk will give up their private cars and use the taxicab, by which they will escape paying any motor tax at all. Many manufacturers are already reducing their staffs and the unemployment question is likely to shortly become exceedingly acute. The tax will have the beneficial result of drawing attention to the paraffin carbureter. The S. M. M. T. is presenting a petition to the parliament on the taxation question.

MUST PAY TIRE DUTY, TOO

Washington, D. C., May 22—Considerable interest attaches to a decision of the board of general appraisers in the case of the American Locomotive Automobile Co. and others against a decision of the collector of customs at New York. The merchandise in suit consisted of motor cars, each accompanied by a full set of rubber tires which were detached from the wheels and which were separately itemized on the invoices. Duty was assessed on the articles as entireties at the rate of 45 per cent ad valorem under the provisions of paragraph 193, of the existing tariff act, as manufactures in chief value of metal, not specially provided for, and the claim in the protests of the importers was that the rubber tires should be separately assessed at the rate of 30 per cent under paragraph 449 of said act as manufactures of rubber. The issue presented related to the proper classification for customs purposes of certain motor cars and the rubber tires thereof. The articles were entireties as imported, and in the opinion of the board there is no reason why any particular part should be segregated from the rest and a separate duty taken thereon. It is evident that a motor car requires a set of tires so as to be available for use, and in the board's opinion such tires, when imported with the motor car, constitute one of the assembled parts, without which the machine would be deemed incomplete. The weight of authority is against the contention of the importers and the board held that the collector's assessments were in strict accordance with repeated decisions of the courts and the board, notably United States v. Irwin. In view of the previous rulings on this subject, the board held that it is now well settled that when incomplete motor cars and the tires necessary to put the cars in running order are imported together in the same vessel, by the same importer, and entered at the same time, the parts are dutiable as a whole, though before the machines are ever used other tires may be substituted, and though it may appear that prior to importation the rubber tires had not been fitted to the wheels of the motor cars they accompany. The board held, therefore, in these cases, that the collector's assessments were correct, and overruled the protests.

GERMAN TOUR ENTRIES

Berlin, May 10—Not so many last-hour entries materialized for the Prince Henry tour as had been anticipated. The promoters had to be contented with adding two more to the list and thus 113 entries were received all told. The late-comers were a Metallurgique car and a Delaunay-Belleville. The German critics seem all to feel somewhat disappointed at the entire absence of English cars from the event. Although no complete data has yet been published about the cars it can be said that there will be but a small number of one or six-cylinder cars, most all having four-cylinder engines. Concerning the bore and stroke of some of the cars it is reported that the Benz representatives will try three different models, having respectively the following cylinder dimensions: 3.1 by 4.7, 4.3 by 5.9 and 4.1 by 5.1 inches. Willy Poegge will drive a Mercedes with a new motor having a 3.5-inch bore and 5.5-inch stroke. The Horch cars will have among them one or several with 3.3-inch bore and 6.7-inch stroke, while the Gaggenau makers have still a march on them by having a stroke of 7.8 inches, the bore being 3.9 inches. The Opel cars will have motors with cylinders 3.3 by 4.9 and 4.3 by 5.9. One of the Adler cars is to have a motor 3.3 by 4.9, while the other cars of this make are reported to all have motors 4.3 by 4.7. The Protos six-cylinder cars will have motors 4.3 by 4.7, while one of the two Gobron cars, from France, is credited with a motor with 4.4-inch bore and 7.8-inch stroke.

WHEEL TAX DECISION

Washington, D. C., May 24—An opinion has been rendered by the assistant corporation counsel of Washington to the effect that only by suit in court against each individual motor car owner in the capital city can the wheel tax levied by the last congress be collected.

FRENCH MAKERS ASK FOR STOCK CAR RACING

PARIS, May 14—This year's voiturette race, which is to be run even if there are only three starters, is causing considerable comment and has led to an exchange of views on the subject of such a contest next year. Big houses like Gregoire, Sizaire & Naudin and others seem to have quite a diversity of opinion.

The Gregoire company makes the following suggestions for the race in 1910: "The regulations should have for their basis the good faith of the manufacturer. The race should be for cars of stock construction, the list price being stipulated not to be over a specified amount. All the parts of such car or cars should be entirely of stock design. The main parts, such as carbureters, cylinders, pistons, camshafts, connecting rods, and rear axle, etc., should be selected in the shops of the manufacturer by a committee at least 2 months before the race. The race should be open only to manufacturers who are in a position to show that they actually have made at least twenty-five cars similar to the one or more entered, the committee to be shown the twenty-five completed cars or the parts for them.

"If the manufacturer intends to make any changes for the race he should have to state them and agree not to make any other changes. Failure to comply with this provision should result in 10 years' disqualification for the manufacturer from all events promoted under sanction of the Automobile Club of France. The cars entered should not be sold before the race but should be on sale after the race at the regular list price. The style of car entered is to be shown in the catalog of the manufacturer at least 6 months previous to the holding of the race. The speed should not be the principal object of the race, but it ought to be a very long race, at least 2 days, with a minimum of 500 kilometers to be covered each day. We strongly believe such a race would be a success and would prove of value, and if you decide to promote it we ask the privilege of entry numbers 1, 2 and 3 for the Gregoire cars to run in 1910."

A French manufacturer whose name is not published by l'Auto, said he keeps out of this year's event because the regulations favor big cars. He wants the event for stock cars.

The Sizaire & Naudin company says that it is in favor of the idea of the race being reserved for stock cars. On the other hand, the makers of these cars say: "You seem to be afraid that there will be trickery, although it seems to us that it is just what you should favor or encourage. What you wrongly call trickery is really the goods that show progress. As long as the consumption and the selling price are limited and the car strictly conforms in its characteristics to the specifications given in the cataolog, what do you care about the progress a constructor has been able to make to win the prize, inasmuch as his customers will profit by it? In 1905 our 8-horsepower motor hardly was able to show that much horsepower on the brake, yet, without changing anything on the motor, as far as the principle and the characteristics are concerned, this motor will now show 15 or 16 horsepower and consume less fuel than in former years."

REUNION OF RACE DRIVERS

Paris, May 17—For lack of an annual road race to unite the knights of the steering wheel, it is proposed that European race drivers should find a common meeting ground around a banqueting table. The idea put forth is that all drivers who have taken part in international road races during the past 10 years, and have finished among the first ten in any of these events, should meet at a race drivers' banquet to be held somewhere in Paris. The idea has met with favor, and the race drivers' banquet will doubtless become an established institution. Even the French voiturette race, which at one time seemed likely to provide good sport, is now in low water. The regulations have developed a freak type of car with a single-cylinder engine of slightly less than 4 inches bore and a stroke of 10 inches, from which 30 to 35 horsepower can be obtained. Two firms in France—Sizaire-Naudin and Lion-Peugeot—have specialized in this class of diminutive speed monster, with the result that other firms, content to confine their efforts to the production of commercial models, find themselves unable to make even a respectable showing in such company. The consequence is that the voiturette race to be run at Boulogne, on June 20, has only received six engagements, with the possibility of obtaining but three more by the time for closing the lists. The organizers declare that they will hold the race whatever the number of starters, in which case it will be a curious example of the law of the survival of the fittest.

REEVES REPORTS PROSPERITY

New York, May 22—Judging by the productions of the various factories in Pennsylvania, that state is now taking its place among the leaders in the motor car industry, according to Alfred Reeves, general manager of the American Motor Car Manufacturers' Association, who returned Wednesday from a visit to the various factories in the Keystone state.

"The Pennsylvania Auto-Motor Co. has built two additions to its factory during the past year," said Mr. Reeves, "giving it more than double floor space. The company is working nights trying to catch up with orders, and, by the way, the night and day shifts are in evidence at all the factories in Pennsylvania. At the new Chadwick plant, now located at Pottstown, L. S. Chadwick and H. B. Larzelere took me through the factory where Chadwick cars are made. The big six-cylinder Chadwick racer will compete at Wilkes-Barre with Len Zengle at the wheel. The company makes a chassis of 112 inches for the runabout and one of 130 inches for the touring car. The Acme plant at Reading is working a night shift. H. L. Huff, the secretary-treasurer, said his company is behind in orders with all its models, although making every effort to keep up with the demand. Some additions have been made to the plant since last year, making for a bigger production.

"Charles E. Duryea, one of the pioneers of the business, has a place in Reading where he is turning out the motor buggies. At Allentown the Mack Brothers Motor Car company is swamped with orders for trucks. Its line comprises trucks of from 1 to 5 tons, and while the company continues to take orders for sight-seeing cars, most of its attention is being paid to filling orders for trucks. It has just perfected arrangements to take over Mack Brothers' Brooklyn plant, where most of the body work will be done in future and where general headquarters will be maintained for the Allentown product. The York Motor Car Co., of York, Pa., has undergone a change in management by the purchase of the controlling interest in its stock by Oscar Stevenson and Thomas C. O'Connor of New York. The change will not affect the car or the general management in any way. Mr. O'Connor has been elected president and Mr. Stevenson treasurer. The company now has 400 men working, turning out an average of twenty cars a week. Messrs. Stevenson and O'Connor have been stockholders in the company for a couple of years, but now take active management of the company. They are treasurer and secretary, respectively, of the Wakefield Realty Co. and of the Homesite Realty Co. of New York. Mr. O'Connor also is president of the O'Conor-McIntyre Co., an engineering and contracting firm. The Hart-Kraft Co. in New York is working full time getting out its light delivery wagons. It also reports it has its order book well filled and the demand for cars brisk."

WANT NEW GARAGE LAWS

St. Louis, Mo., May 25—Dealers of St. Louis Automobile Club in an effort to have the city ordinances relative to the building and maintaining of garages repealed and new laws enacted in their stead. It is declared that the present restrictions are injuring business in St. Louis. The Albert Stern Automobile Co., which has procured the agency of the Gaeth, wants to build a new garage on Olive street, but is waiting to see if the city will not remedy its ordinances.

SOUTHERNERS ON SCOUT FOR GOOD ROADS

GEORGIA ROAD AND STREAM OCCUPYING THE SAME BED

ATLANTA, Ga., May 18—The initial scouting for the first endurance run from New York to Atlanta was finished today and the mud-covered White paraded the streets of Atlanta after nearly 500 miles of scouting between Atlanta and Greenville, S. C. The southern end of the endurance run is being promoted by the Atlanta Journal and in the scouting car when it left Atlanta May 14 were two representatives of that paper, President Frank S. Welden of the Interstate Highway Association; Edward Inman, president of the Fulton County Automobile Club, and E. W. Gans, manager of the southern branch of the White company and president of the Atlanta Automobile Trades Association.

For nearly 5 days this car prospected about in Georgia and South Carolina, picking the roads over which a big body of tourists will travel next fall in the run to Atlanta. There are only two main routes, the north and the south, and both of these were well worked out, though no announcement was made as to which was selected. The two interesting features of the scouting through Georgia were the really wretched conditions of many of the roads and the really heroic efforts that are being made to better conditions. Georgia, after years of leasing convicts to private contractors, has turned them over to the counties for road-building, and the dirt is flying. This enthusiasm was evidenced at every turn. Delegations met the scouting cars, extended invitations to run the route their way, suggested the best routes and asked for advice about road-building. In most towns there were two factions, one pulling for the shortest route and the other for the one offering the best roads, and the pioneers found it a matter of no inconsiderable difficulty to get definite information as to the best routes.

After the scouts crossed into South Carolina the roads proved better and from Greenville to the Savannah river, which

BROWN'S FERRY OVER SAVANNAH RIVER

must be crossed to get into Georgia, the going will be good. Traveling from Atlanta to Greenville the scouts went through Lawrenceville, Winder and Commerce to Lavonia, spending the first night there. Then they worked out the two ways of crossing the river, one the primitive Brown's ferry, which requires 50 minutes for a round trip and which could carry over but one car at a time, and the other the Knox bridge. This latter structure is a covered wooden truss bridge of unique construction, wood being the only material used, even down to pegs instead of nails or bolts; and the truss work covering top and bottom as well as sides, so that it can stand lateral strain. In fact the abutments recently washed from under one end of the bridge, at high water, and the structure was so firm it was not displaced and the free end stood alone.

The South Carolina approaches to these two points of crossing were also worked out, and then the car sped on to Greenville. Returning, the party worked out the north route. This leads through Piedmont, Pelzer, Seneca, S. C., over into Georgia, through Toccoa, Mt. Airy, Gainesville and Norcross to Atlanta. The roads on this north route left considerable to be desired, but the scenery was unexcelled and if the tour passes over the north route those who take part will see some of the grandest scenery of the entire southland—picturesque, jagged, rocky mountains, now heavily covered with verdure, and all tinted with the red of the Georgia clay. The scenic outlook through much of the northern route to Atlanta proved a revelation to the scouts, and this feature is one of the most attractive of this road.

SAVANNAH ANNOUNCES TEST

Savannah, Ga., May 23—At a meeting held by the Savannah Automobile Club last Friday night everything was arranged for the endurance run which is to be held May 31 to Augusta, Ga. Secretary Soloman announced the penalty schedule. For a stop to make repairs the car will be penalized 25 points. If the stop is for a longer period than 30 minutes an additional 25 points will be given. If a car is more than 45 minutes late at Scarboro, where lunch will be taken, the penalty will be 25 points. A similar penalty will be placed upon a car which requires more than 11 hours' running time from Savannah to Augusta. If a car is more than 5 hours late, it is to be disqualified, and if it arrives in Augusta in less than 10 hours, it will suffer the same penalty. The start will be made from the De Soto hotel and President Frank C. Battey will lead the party as the official pilot. Any car which passes him will be disqualified. The trip all told will take from 10 to 15 hours. During the run there will be only three stops. These will be made at Millen, Scarboro and Waynesboro. According to schedule the machines should reach Augusta at 6:30 in the evening.

ROAD EXHIBIT AT SEATTLE

Seattle, Wash., May 21—There will be a government good roads exhibit at the exposition which will open on June 1. M. O. Eldridge, senior assistant in road management in the United States office of public roads, has prepared fifteen models of roads showing roads in their various stages of construction. Gravel, sand, clay, tar, crushed stone, etc., are used in combination to bring the results which the office of public roads has found to be the most satisfactory. The destructive influence of the motor car on the macadamized road has been neutralized by a coating of tar. Types of oiled earth roads, of which there are 5,000 miles in California, the baked gumbo roads of Mississippi, where there is no available stone; the sand clay roads of South Carolina and the crushed stone roads of Washington, will be shown. A score or more of road machines will be shown in models, several of the machines will be worked, as well as a miniature stone-crushing plant.

BAY STATE PROPOSES MOTOR MILITARY CORPS

BOSTON, Mass., May 22—Judging from the plans that are now under consideration by military officials in Boston, a motor corps may become one of the additions to the state militia. A few days ago it was announced that the military maneuvers this year would be far different from those in other years, for it is planned to place Massachusetts in a state of siege, the national government intending to use both the navy and army in an attempt to effect a landing on the coast. When this became known the practicability of motor cars was thought of and it was given some consideration.

The state is to be given only 24 hours notice of when the invading force intends to make a landing, and as the coast line runs for many miles north and south it means that troops and supplies must be rushed to the scene at short notice. With the splendid roads along the shore it was figured out by some of the military officers who are motorists that it would be possible for a corps of motor cars to race along the shore and do more effective work than if trains, street cars and forced marches were relied upon.

The suggestion that Adjutant General Bingham has in mind is to ask members of the militia, perhaps one organization like the First Corps of Cadets, to lend its cars to the state for 8 days. If the cadets can supply fifty or more machines it may be designated the motor corps, otherwise the machines may be obtained from members of other organizations and a special motor corps formed temporarily. The corps when completed will comprise not only motor cars, but trucks to carry supplies, and motor cycles for dispatch bearers.

It is proposed to utilize the cars in many ways. The first one will be to arrange for setting up of signal stations. When word comes that an invasion is threatened one or two big cars will rush the signal men to some spot where they may take a stand and begin their work. The cars will be valuable in this work as field telephones may be strung rapidly and heliograph stations established inland out of range. At headquarters will be cars and motor cycles, the latter for dispatches, and the cars for conveying officers from point to point.

It is expected that a flying motor squadron, comprising one battalion of perhaps 250 men, picked sharpshooters, will be mobilized which may be thrown quickly into some place so as to check the invasion until the regular troops arrive. With motor cars such a squadron could be landed at a number of points within an hour or so. Hertofore in maneuvers in the Bay State the motor cars have been required to do cross-country work, and this has not been of much use.

Owners of cars will be invited by the governor to register their cars with the adjutant general, giving the seating capacity, power and other necessary particulars. These cars will be offered with the understanding that if at any time the state needs them to protect itself from invasion, to quell riots, or in such emergencies as the big Chelsea fire, the adjutant general may send for the cars, and they will be driven to a central point he may designate and with their drivers be at the disposal of the state as long as necessary. The state, of course, will reimburse the owners for any damage. It would not be surprising if something along this line might be enacted by the legislature next year.

SAMPLE OF BAD GEORGIA ROAD THROUGH COTTON FIELD

ROAD NEAR STONE MOUNTAIN

RIVALRY IN BALTIMORE

Baltimore, Md., May 22—Some little rivalry has developed among certain of the dealers whose cars participated in the endurance run which was held Saturday, May 15, from Baltimore to Frederick, Gettysburg and Westminster, with the result that at least one and possibly three trials for supremacy will be held. The most likely contest is one between the 48-horsepower Winton, entered by the Winton Motor Car Co., and the 30-horsepower Packard, entered by M. S. Hess, both of which were tied in class A touring cars over 30-horsepower, each with a penalization of two points. A private contest between the 35-40-horsepower Gaeth, entered by F. W. Sandruck, and the 45-horsepower Stoddard-Dayton, entered by the Stoddard-Dayton Baltimore Co., which competed in class B for tourabouts over 30-horsepower. The Gaeth was penalized 45 points and the Stoddard-Dayton 12 points. Another is proposed between the 28-horsepower Franklin, entered by the Mar-Del Mobile Co., and the 40-horsepower Studebaker, entered by D. C. Walker. These cars were the winners in classes C and B, respectively, and were the only ones that finished with perfect scores. The test proposed is from Baltimore to Pittsburg and return.

WILDWOOD'S PROGRAM

Wildwood-by-the-Sea, N. J., May 24—The Motor Club of Wildwood has just issued its program for the annual Fourth of July carnival, Saturday, July 3, club runs to start from New York and Philadelphia, the New Jersey Automobile and Motor Club, of Newark, having already accepted the invitation. Sunday will be devoted to sight-seeing. Monday morning there will be a motor parade on the boardwalk, and in the afternoon the piece de resistance of the carnival—the race meet—will be held on the Central avenue boulevard mile course. The program for the races will include:

1—Special handicap for gasoline cars, 1 second for each $200 in value.
2—Handicap for gasoline cars, $850 or under, 1 second for each $200 in value.
3—Special handicap for gasoline cars, $850 to $2,000, 1 second for each $200 in value.
4—Free-for-all, open to all makes and types of cars.
5—Special event for steam cars only.
6—Handicap for gasoline cars, $2,001 to $3,000, 1 second for each $200 in value.
7—Handicap for gasoline cars, $3,001 to $4,000, 1 second for each $200 in value.
8—Special handicap for gasoline cars only, all makes and prices, handicaps according to reputation of car and driver.
9—Time trials, 1 mile; two trials for each entrant.
10—Time trials, 1 kilometer; two trials for each entrant.

Legal Lights and Side Lights

FRANKLIN FILES PROTEST

A NUMBER of manufacturers and clubs of New York state are still using every effort to prevent the Allds-Hamn bill from becoming law through bringing influence to bear upon Governor Charles E. Hughes to persuade him to veto it. One of the most strenuous opponents to the bill is H. H. Franklin, of Syracuse, who has filed a brief with the governor because of the fact that at the time of the hearing Giles H. Stilwell, general counsel for the Franklin company, who was to have appeared and made a personal argument against the bill, was prevented by sickness from doing so. A digest of the brief follows:

The sections requiring payment of an annual registration fee by car owners and by chauffeurs are unconstitutional.

The registration fees called for are in excess of what is required to properly meet the expense to the state of registration and are to provide revenue for the maintenance of improved roads. They are a special highway tax upon motor vehicles and their operators and, it is specified, "shall be in lieu of all taxes, general or local."

Those portions of the constitution violated by this arrangement are those which say that "no state shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States, nor shall any state deprive any person of life, liberty or property without due process of law, nor deny to any person within its jurisdiction the equal protection of the laws," and again that "no person shall be deprived of life, liberty or property without due process of law, nor shall private property be taken for public use without just compensation."

The operation of the proposed tax is unfair. Two persons must pay the same tax of $10, though one be the owner of a 30-horsepower motor vehicle used so many years that it is not worth over $500 and the other the owner of a new 60-horsepower touring car worth $5,000 or more.

If it be assumed that the method of taxation is right, in one case the tax would be unreasonably high and on the other unreasonably low.

The proposed tax is not at all according to the use of or injury to the highways. Motor vehicles are mainly owned and used in cities, which maintain their thoroughfare without special help from the state. The greatest use of country roads is by farmers' vehicles, and there is nothing to show whether the use of those vehicles or of motor cars is more injurious to country roads as they are used today. Of such damage as motor vehicles may do to country highways, a large part must be done by nonresident tourists whom the proposed law will not tax.

In taxation, a state cannot discriminate between the property of residents and nonresidents.

The fourteenth amendment of the United States constitution was intended to secure equality of rights to all people, which includes equal exemption with others of the same class from charges and burdens of every kind. One class cannot be taxed for the benefit of another class. Due process of law means that taxation must be according to some uniform scale of apportionment.

The speed limitations in the existing motor vehicle law should not be removed. The increase in accidents indicates that any change made should be in the direction of greater speed restriction.

Ultimately the law regulating the operation of motor cars should be the same as that for horse-drawn vehicles, but the safety of neither motorists nor others will permit it now.

The proposed law, with the results that will inevitably follow its operation, will revive and increase the prejudice against the motor car and motor car operations and thus delay the good feeling that ought to be established as soon as possible between all users of the highways.

The theory of the proposed law is wrong. It makes the state in a way a partner with a class of users of the highways. It gives a class an opportunity to say: "I pay for the maintenance of these roads. You do not. I should have rights here which you do not have."

This will tend to make motorists more arrogant and abusive of public rights than they now are.

The measure as framed does not cover motor cycles, which are generally run faster than motor cars, and in proportion to the size of tire used do more damage to improved roads than do motor cars. If motor cars should bear a tax, so should motor cycles.

WISCONSIN LEGISLATION

Any person who shall obstruct any public highway in Wisconsin by wilfully or maliciously placing or causing to be placed therein any depression, ditchs, humps or embankments or earth, logs, stone, nails, glass or other materials or substances intended to impede or incommode the lawful use of such highway, is liable to a fine of not less than $10 nor more than $100, according to a law passed by the Wisconsin legislature and signed by the governor. The law makes it obligatory for superintendents of highways of townships or districts to remove such obstructions on written notice from any resident of the state, failure to do this making them liable to a forfeit of not less than $10 nor more than $25 in each case.

The Bichler bill, a radical tax measure introduced by Assemblyman Bichler of Shawano in the Wisconsin legislature, has been killed in committee. It provided a tax based on horsepower, the fee to be used for highway improvement, if in excess of the actual expense of registration and license tags. The bill was strenuously opposed by the Wisconsin State A. A.

The Wisconsin senate has passed the bill raising the registration fee from $1 to $2 and abolishing transfers, and the measure making joy riding a misdemeanor. It is believed that the assembly will take similar action.

PUSH BAY STATE MEASURE

The committee on roads and bridges has reported to the Massachusetts legislature the new motor bill. The horsepower taxation feature is what is objected to, has been objected to for 3 years, and will be objected to. It provides that after January 1 next the cars will be taxed according to horsepower, paying a fee of $5 for 20 horsepower or under, $10 up to 30, $15 up to 40, $20 for cars up to 50, and all over 50 horsepower $25, to be paid annually. Motor cycles are to pay a uniform fee of $2 and all commercial vehicles are listed at $5. Dealers are to be allowed five cars for $25 and for each additional car $5. Chauffeurs' licenses are to cost $2 each and the private operators will pay 50 cents.

An owner who has paid a fee on any one car and sells it may register another car of equal horsepower or lower without charge during the year. All money is to go to the state highway commission for the repair of roads, and it is provided that the money may be expended without getting a special warrant on the state treasurer. Non-residents may operate a car for 10 days without the payment of a fee, provided the car is licensed in its own state. No motor car is to be allowed to stand in a public way without having the brakes securely set. Any person operating a car must bring it to a stop when signaled by the driver of a horse or other draft animal if such animal appears to be frightened. In approaching or passing a street car that has stopped to allow passengers to alight or get on the motor car operator must slow down, and if necessary come to a stop. The speed limits are the same, 8 miles turning corners, 15 in thickly settled places and 20 miles outside the cities. The cities and towns are still to have the power to make local regulations if approved by the commission. The punishment for operating a car recklessly or under the influence of liquor has been increased and owners of garages must keep an accurate record of all cars entering and leaving.

SCARE IN ST. LOUIS

The Automobile Club of St. Louis has stepped in and settled, it is believed, a war between the police department and motorists which threatened to result disastrously for owners and drivers of motor cars in St. Louis, Mo. The result is that a truce has been formed with Chief of Police Edmund Creecy until he can examine the merits of a bill which the club wishes the municipal assembly to enact into a law. The cause of the trouble was an attempt of the motorists to have the present city ordinance declared unconstitutional because it conflicts with the state law governing the owning and operating of motor cars. Chief Creecy, being advised by the city counselor that the ordinance in all probability is invalid, decided to take the motorists at their word. Thomas W. Carter, Jr., had instituted a suit in the civil court to test the constitutionality of the ordinance. Creecy announced that in future all violators of the speed laws would be prosecuted in the court of criminal correction instead of in police court. This threw the club into a panic, since the state laws provide a jail sentence for exceeding the speed limit, and forfeiture of the right to own and operate machines, upon conviction a second time. Following this action on the part of the police, officials of the club went before Creecy and asked that he reconsider his action, pointing out that the club never has advocated a violation of the law, but, on the other hand, has encouraged adherence to the city ordinances. Then a bill was drawn and pre-

sented to Creecy which, if passed, will give motorists a greater leeway than they ever have had. So, as a result, if the chief agrees to the terms of the proposed ordinance and it is enacted, the club will have been the victor after all.

The suit to test the city ordinance arose over the fact that 8 miles an hour is fixed as the maximum legal limit for operating machines within the city, and 6 miles an hour in parks; while the state statutes fix the maximum in cities at 10 miles with no reference to parks. In attacking the ordinance, however, Carter did not realize the state law provided a jail sentence and forfeiture of license.

The proposed ordinance which the chief is considering fixes the maximum in the downtown districts of the city at 10 miles an hour and a reasonable limit in the residence districts, this reasonable limit not being named, but to be dependent upon the circumstances. As an example, if a motorist should make 15 or 20 miles on a street clear of traffic and in daylight, he might be considered as retaining a rate within a reasonable limit. Chief Creecy himself is friendly to motoring and it is considered he quite likely will indorse the bill. With his indorsement the municipal assembly would not likely turn it down.

WHAT MICHIGAN DID

The forty-fifth Michigan legislature has adjourned. During its session it passed the Fox bill, a codification of all the state good roads laws, allowed the Schantz bill providing a graded tax according to horsepower to die a natural death in committee, appropriated $150,000 per year for 2 years for the use of the Michigan highway department and appointed a new state highway commissioner.

The Fox bill allows the good roads district measure, through which hundreds of miles of good roads have been built with aid from the state, to stand. It simplifies the work of the highway commissioner. It is a combination of seven bills presented during the session. The appropriation for the state highway department is contained in the measure and the appropriation is at least $25,000 more per year than the department ever has had before.

The Schantz bill, the idea of Representative Schantz of Barry county, provided a graded license. The bill had been in a committee up to the last of the session and died there. Representative Schantz intended to try to force the measure onto the floor before the adjournment, but a few days before the final session he was attacked as he was walking through a dark street in Lansing late one night. His assailant gashed the legislator's throat severely with a razor and Schantz was taken to a hospital, being unable to occupy his chair in the house for some days. He returned 2 days before the session ended and tried to have his bill considered, but the time was too short and it lost out.

Because of the failure of another Schantz bill—the motor cycle bill—motor cycles hereafter will be required to strictly observe the motor car laws even to the carrying of numbers on both front and rear of machines, the carrying of two lights on the front and one tail light on the rear. Owners also must pay the state motor car tax of $1 and must conform to the speed limit laid down by the old law.

RHODE ISLAND SESSION OVER

The Rhode Island legislature has ended its deliberations and among the measures acted upon was one that amended the motor law of a year ago. Under the new law garages are more clearly defined, and the garage men must keep a record of cars entering and leaving their places. Motor cars need not be registered until they are ready to be used. The same scale of fees remains, and the state board of public roads determines the horsepower and its determination is final. Unless a car is equipped according to the laws, the board has the power to refuse a license or revoke the registration of such vehicle. If a man sell his car he may retain his number plates and use them the balance of the year for another car of the same or less power, by notifying the board. The board has been given power to summon witnesses and administer oaths so as to make inquiries where it deems it necessary. The joy riders are taken care of by a fine of not more than $1,000 and 3 years' imprisonment for using a car without the consent of the owner. The fees derived from the cars instead of going wholly for repairing the roads are devoted partially to support the state board, giving $500 a year to each member and $1,500 for clerical and other expenses. The sum of $1,000 is appropriated for the balance of this year to be used by the state board in doing its work, and thereafter $3,500 annually is to be paid it.

MISSOURI SOLONS THROUGH

The Missouri state legislature at Jefferson City has adjourned without having passed several bills urged by the Automobile Club of St. Louis and motorists of Kansas City, St. Joseph and other cities in the state. One bill, however, which died in the legislature was rather to the detriment of motorists, although the St. Louis club had indorsed it and was willing, out of a spirit of fairness, that it be passed. This was the bill requiring an annual license to own and operate machines, a graduating scale being provided, regulated as to horsepower. At present a license runs perpetually and the law permitting this must necessarily remain in effect 2 years more. A perpetual license costs only $5.

OHIO INTERPRETATIONS

The Ohio state motor car department and the attorney general of the state have made several rulings of interest to drivers within the state. The law provides that all chauffeurs must secure licenses, but it is ruled by the department that when the owner and any member of his immediate family drives the car they need not be provided with licenses. As the licensing of chauffeurs is primarily for the purpose of identification, such identification is not helped by issuing licenses to the immediate members of the owner's family, as he is personally responsible for all damages. On the other hand, Attorney General Denman has ruled that where a motor is owned by a corporation and is driven by the various officers and stockholders of the concern, all must be provided with licenses. He holds that the law does not contemplate freeing officers or stockholders of a corporation from procuring the license when driving the car held by the corporation.

NEW MINNESOTA LAW

It took clever manipulation by the Minnesota motorists who were seeking the passage of a new motoring law before the last legislature to secure action, but they were successful. The first bill drawn provided for taxation on a horsepower basis. This feature was talked strong and the good to be done by the immense fund thus created in good roads work, was expatiated upon. Strong opposition developed and the fight was waged between the motorists and the representatives and senators from the rural districts who had the clamor of their constituents in their ears. Promises were made on both sides and at the proper moment the horsepower tax idea was eliminated and in exchange the motorists received promises of prompt action. State registration, reasonable speed regulations and strict definition of the laws of the road were really the principal points hoped for by the motoring interests and the law as finally passed embodies these points. Thus the motor interests did accomplish something in the face of conditions which made it appear that absolutely nothing would be done until 2 years hence. The state registration fee is $1.50 for private owners and $10 from dealers, who are assigned a distinctive number, duplicates of which are furnished at $1 each. Lights on front and rear are required during the time from 1 hour after sunset to 1 hour before sunrise, and mufflers are required and must not be cut out within the limits of any city or village of the state. Chauffeurs are required to be licensed and before these licenses are granted must answer a list of questions. Chauffeurs' badges are issued with the license and must be worn in a conspicuous place. Regarding the speed of motor vehicles, the law says no person shall drive a motor vehicle at a speed greater than is reasonable and proper; prescribes a speed of a mile in 8 minutes on curves, descents and bridges and forbids speed in excess of 25 miles an hour. Violation of any of the provisions of this law, known as chapter 259, and also of chapter 265, which makes joy riding a punishable offense, is a misdemeanor. The law became operative throughout the state May 15, 1909.

The Readers' Clearing House

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

REPAIRING WATERJACKET CRACKS

CLEVELAND, O.—Editor Motor Age—I remember seeing in the Readers' Clearing House about 3 years ago a letter from a man who had cracked his cylinder jackets by freezing, and I think he repaired the same with some combination like litharge, or red lead and glycerine, and perhaps some iron fillings. Will Motor Age kindly advise whether it can find this or not, or tell me what would be suitable for this? Does Motor Age believe iron cement would give satisfaction? I have a 26-30-horsepower two-cylinder motor; the jacket is cast integral with the cylinder, but with a false head so that the inside can be gotten at. It is a 5½-inch by 6-inch cylinder, so that there is room to work. There are two small cracks, each about 3 inches long, about ½-inch to 1½-inches apart. They are separated very little and large strong casting so there isn't much strain here. —W. F. Bailey.

A most satisfactory method of rusting up a cracked cylinder is to use sal ammoniac. Take ½ pound of pulverized sal ammoniac; mix it with ½ gallon of water and boil. Pour this into the cylinder jacket and let it stand over night. Drain this out on the following morning and allow the jacket to stand idle for a day, during which time the rusting to fill the crack should take place. Plain ammonia has been used, but not with so great success. When used a pint of pure ammonia is mixed with a pint of water, or double quantities if desired, and the jacket filled. It should be allowed to stand for a couple of days at least, when the jacket is drained and an opportunity left for the rusting to take place.

LEATHER MEDAL FOR BUTLER

Butler, Ind.—Editor Motor Age—I am sending herewith a photograph of a leather medal that was sent to the city of Butler, Ind., by a motorist who toured through Ohio, Indiana and Illinois. Not a place in the country or in any town through which he passed did the road conditions compare with the streets in Butler, they being almost impassable in the business districts. The best evidence of enterprise always is manifested by the condition of the streets.—Reader.

SOAP FOR WASHING BODIES

Chicago, Ill.—Editor Motor Age—What is the proper method of using soap in washing the bodies of motor cars?—Chauffeur.

The best method for using soap of any grade is to dissolve the soap in water first, making a liquid or jelly, according to the amount of water used, and then from this soap stock make up the necessary strength of suds for washing the car. It depends entirely upon the quality of the soap as to how much soap could be used in each pail of water. By quality is meant the amount of filler found in each pound of soap the person is using. There are many methods of adulteration. Some use resin, some use yellow grease, some use potato flour, and some use the foots of oil. There is an article on the market called soap stock, which is made up entirely from the foots of oil, carrying about 10 per cent of real soap; the balance is vegetation. When a person fills the soap with any of the above ingredients it requires an alkali to hold the filler in the soap. The more the soap is filled, the more careful the party must be in making up the soap stock and the amount of soap used in the washing water, as the process of cleaning with a filled soap is part soap and part alkali method. That is, it is part emulsification and part saponification. A soap that has any cleaning power by saponification is dangerous to use on painted and varnished surfaces, and must be handled very carefully. Pure soaps, that is, those made strictly of high-grade oil without filler, carry very little free alkali. In dissolving this style of soap in water, especially if the water is hard, the precipitation takes place by the lime in the water, tending to neutralize the soap, so that it does no damage to the paint or varnish. In using a green oil soap, dissolve at the rate of 1 pound to each gallon of water and use a cupful or two of this solution to each pail of wash water; or, dissolve 5 or 6 pounds in a barrel; then fill the barrel two-thirds or three-quarters full of water and dip this solution out into pail for washing. Do not use raw soap in the pail which is used for washing. Wash the car with suds and immediately rinse with a hose or sponge and clean water. Water should never be more than lukewarm in washing paint or varnish. It is always best, if possible, to dissolve the soap with hot water, and then pour cold water to cool it down to a tepid temperature before washing the car.

BUTLER BAD ROAD MEDAL

USE OF PICRIC ACID

Batavia, Ill.—Editor Motor Age—Through the Readers' Clearing House will Motor Age inform me how much picric acid is generally put in a gallon of gasoline? Is it dissolved in water or gasoline and then strained?—A Reader.

Those who have experimented with picric acid have obtained best results by using 1 ounce of picric acid and 2 ounces of sal ammoniac with 5 gallons of gasoline. The picric acid is dissolved in a quart of gasoline and then added to the 5 gallons. The only bad effects that have been experienced is the discoloring of all parts with which the acid comes in contact, it turning these parts yellow. The majority of those who have experimented with it have not used it a sufficient length of time to discover whether or not it has serious effects on the cylinder walls. The value of the picric acid consists in giving more snap to the motor, the impression being there is more gasoline used than ordinarily, and that the mixture is just right. Ether has been used with about the same results as picric acid, the best mixture being 3 ounces of ether to 5 gallons of gasoline.

EQUIPPED A GARAGE

Stratford, Ia.—Editor Motor Age—I am about to erect a one-story brick garage, 25 by 100 feet. Will Motor Age give me some information as to equipment needed and the general arrangement of such a building, containing an office and repair shop? —Fred Lundberg.

In a public garage of this nature you should have a small office space in front with an adjoining room to serve for carrying supplies, such as spare tires, lamps, and extra parts that you may find advisable to carry. There should be one department suitable for tire repair work, such as patching inner tubes, and if your garage is located at some distance from branch

tire houses you should install some form of vulcanizer to be used for repairing blow-outs and cuts in outer casings. One repair pit would be advisable, although garage owners prefer not to have the repair pit. Your repair shop equipment could include a small lathe, power drill, forge, and complete set of repair tools. Ample storage for gasoline should not be overlooked, the equipment for which could be secured from concerns making a specialty of gasoline storage tanks and pumps for handling same. Oil facilities, such as storage tanks for several grades of oil should also be fitted. If you intend having a rear entrance to the garage it would be well to locate the oil and gasoline tanks as indicated in Fig. 1, page 26, Motor Age, May 13, 1909. Lockers should be provided for the use of those storing cars. It would be advisable to install an electric charging apparatus if the electric demand is sufficient.

GETS TOO RICH A MIXTURE

Bardstown, Ky.—Editor Motor Age—I have a small 1903 Oldsmobile runabout, which I have been using for the past 2 years and until recently it has been giving excellent service. About 1 year ago I put on a model A Holley carbureter, made especially for this car and which has resulted in smoother running and more power. A few months ago it began to give me trouble and after much work by myself and others it seems that it is a most peculiar case. As soon as the engine is started the gasoline flows out of the air inlet of the carbureter and makes such a rich mixture that it overheats the motor, and also will not run smoothly or give the usual power or steady running. When the mixing chamber is opened, after running the engine if even for a minute or so, the entire sides and bottom are splashed with gasoline. My theory is that the inlet does not close quickly enough, letting part of the mixture on compression into the carbureter and blowing out the gasoline. I have tried every adjustment of the needle valve and float and am convinced that these parts are right, the float being new, cutting off the flow perfectly at the proper time. The exhaust timing is just right, but the inlet is a little slow in opening and also closes a little below dead center and later than the maker states and according to flywheel marks. I have watched the timing by opening the crankcase and found it as stated. The spark coil, batteries, etc., are in first class shape. Could Motor Age tell me if I could correct the trouble by putting on a new inlet valve cam and advancing it on the cam shaft so it will open and close at the right time, which I can determine through crankcase.—J. S. Heyman.

The fact that gasoline flows out of the air inlet into the carbureter is proof that there is too much escaping from the nozzle, which would seem to indicate that the float level is too high. If this does not prove to be the case, then the springs controlling the ring like air valve around the nozzle are too stiff and its tension should be reduced by the adjusting nut which extends through the top of the cover of the mixing chamber. The trouble is not with the inlet valve closing too late, but with too much gasoline escaping from the nozzle. When the carbureter is in proper working order there should be no excess of gasoline such as you speak of. You can determine if the float adjustment is right by noting if the gasoline lever is slightly below the tip of the nozzle. Should this prove to be correct, then go to the spring controlling the air valve. It may be you have a particularly long intake pipe from the carbureter to the engine, and which, if exposed to cold air currents, will result in condensation of the mixture. This could be avoided by a hot air connection leading from the exhaust manifold and coupling with the intake of the carbureter. Examine the tapered point of the needle valve to see if it is not injured. Frequently the tapered point is injured by screwing too tight, with the result that circular grooves are formed, which allow of too much gasoline escaping.

NOT POPULAR WITH PUBLIC

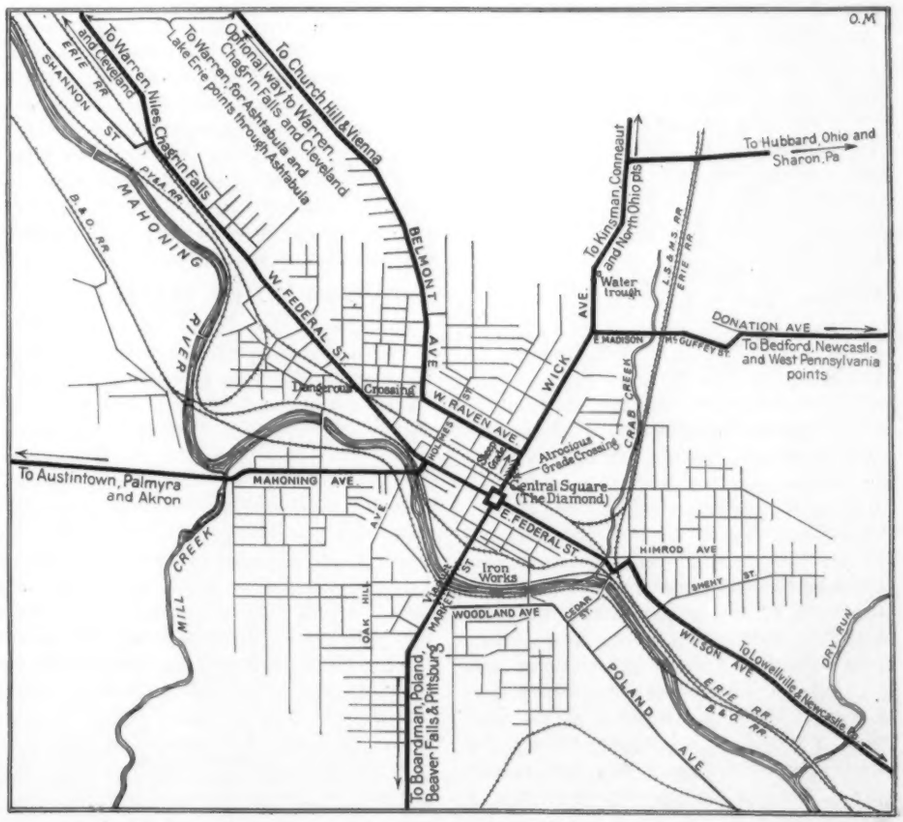
Des Moines, Ia.—Editor Motor Age—Will Motor Age inform me why three-cylinder four-cycle motors are no longer manufactured. They used to be made by Thomas, Dyke and others.—P. S.

The undoubted reason why three-cylinder four-cycle motor is not manufactured to any extent at the present time is that the public took more readily to the four-cylinder type, and manufacturers of the three-cylinder style found it harder to sell such, and naturally followed the course of least resistance; giving the public what it desired.

EFFICIENCY OF FRICTION SETS

Des Moines, Ia.—Editor Motor Age—Will Motor Age tell me what is the efficiency of friction drive compared with single-chain and bevel gear. In other words, what per cent of the power would be delivered to the rear wheels, the friction to be well designed with ball thrusts? What would be the difference between transmitting power with a train of two gears, or friction wheels, friction wheels to be twice the size in diameter and face all plain bearings? What would be the speed limit, on ordinary roads, of a touring car weighing 2,000 pounds, 120-inch wheelbase, 44-inch wheels, with solid tires of as small section as practical, the car to be well designed and power no object? What is an individual clutch transmission? —Subscriber.

At present there is no definite data on the efficiency of friction transmission systems as used in motor cars. The efficiency of friction depends so much on the friction materials, the construction of the parts and other factors. A 2,000-pound car, such as you speak of, should not have a speed of over 30 miles per hour. An individual clutch transmission is one in which the gears on the main and countershaft and gearset are always in mesh, and are not slid in and out of mesh as in a sliding gear transmission. Gen-



COPYRIGHTED MAP OF YOUNGSTOWN, O., TO BE USED IN WESTERN EDITION OFFICIAL BLUE BOOK

erally on the countershaft the gears are loose, not being keyed thereto, but can be locked with the shaft by means of clutches so that on slow speed ahead one set of clutches is used to lock certain gears; on second speed another set of clutches is required, and on direct no clutch is needed. Motor Age would like experiences from readers who have used friction-driven machines.

HAS RADIATOR TROUBLE

Craik, Sask.—Editor Motor Age—Up in this district the water is very heavily impregnated with alkali and I find the tubes in my radiator are gradually closing up. Could Motor Age, through the Readers' Clearing House, inform me of any method of treating the water so as to minimize this effect, if not prevent it? Also what can I do to remove the present deposit? Is there any inexpensive ingredient I can mix with the water to have the chemical effect of absorbing existing alkali? Of course on all possible occasions I use rain water, but this is not always available.—C. R. Crawford.

The simplest solution would be securing wood alcohol and using it in the jackets and radiator. The common alkali are soda, potash and ammonia, all of which are readily soluble in alcohol and water. Alkali incrustations have been removed by forcing a current of water through the jackets and radiator, which has been done by attaching a hose to the intake pipe to the jackets and compelling the water to pass through the jackets through the radiator. A common force pump has also been used with satisfactory results.

TIMING MOTOR VALVES

Jersey City, N. J.—Editor Motor Age—Through the Readers' Clearing House will Motor Age advise me which is the best way to set the valves, whether to set them to close and open on dead center or before dead center, and how many millimeters advance would be the best; also the proper way to time the make-and-break rods?—J. J. Foley.

There is no definite rule for the setting of valves, and it is most uncommon to find them timed so as to open and close on the dead center. A few examples of the timing used on several 1909 cars will suffice to illustrate the general timing: Maker A opens the intake 14 degrees after dead center and closes it 58 degrees after the bottom dead center. The reason for delaying the closing of this valve is that the swift current of mixture downward in the cylinder is such that it counteracts the compression caused by the upward movement of the piston during the first 58 degrees of the compression stroke. Many users believe that if the intake valve does not close on the bottom dead center that as soon as the piston upwards on the compression stroke it will begin driving the mixture outward through the open intake valve. Practice has proven that this is not the case. On this same motor the exhaust valve opens 43 degrees before the bottom dead center, and does not close until 15 degrees after the top. This timing shows that the intake valve does not open until the exhaust is closed. In other makes of cars the intake is opened 15 degrees after top dead center and closed 30 degrees after bottom dead center; and the exhaust opens 40 degrees before bottom dead center and closes 5 degrees after top dead center. In this timing there is a period of 10 degrees when both intake and exhaust are closed on the start of the suction stroke. It is customary with manufacturers to use timing along these lines. If you refer to timing make-and-break rods for low-tension ignition, it should be possible to vary the period of the spark by the use of a spiral cam or by some other device.

SELECTING A PROPER LUBRICANT

Lake Geneva, Wis.—Editor Motor Age—Through the Readers' Clearing House will Motor Age tell me the best method of filtering oil. In Motor Age, February 4 issue, I saw reference made to filtration. There are so many cylinder oils on the market today that it is difficult for one not familiar with lubricants to select a proper oil. Can Motor Age give me any assistance or information so I may be able in the future to choose the proper lubricants?—J. G. B.

There is no definite method by which you can tell by sight when buying an oil whether it is a good one or not. Different people have different elementary methods of testing oils. A common one used is to place a quantity of oil on a sheet of mica and applying heat, noting if there is any residue left. One communication in these columns recently told of testing oil on an exhaust manifold. If the oil is pure there would but a greasy film remain, whereas if impure, impurities would be readily recognized. It would be impossible to filter new oil with the object of improving its quality. Filtering is often resorted to in case of oil that has been used and in which are particles of worn metal.

CHICAGO'S MOTOR TRAFFIC

Chicago—Editor Motor Age—I have noticed on several occasions the large number of cars that pass in and out of Washington park, and I decided to find out as nearly as I could how many went by a given point in an hour. I stood near the Grand boulevard entrance and counted them as they went by. The results are somewhat interesting. The hour was between 3 and 4 p. m. on a week day afternoon. I decided to try it again and see how it would pan out on a Sunday. On this afternon policemen were stationed along Grand boulevard who chased off all smoking cars. The results of the 2 days' count are as follows:

Week-day—Panhard, Stanley, Stearns, Triumph, Lambert, Northern, Orient, Corbin, Halladay and Jackson, 1 each; Aerocar, Apperson, Locomotive, Dolson, Dragon, Elmore, Great Smith, Kisselkar, Lozier, Marion, Matheson, National, Pope-Hartford and Royal, 2 each; Franklin, Silent Knight, Knox, Pope-Toledo, Peerless, Studebaker, Reo and Welch, 3 each; Cadillac, Haynes, Oldsmobile and Wayne, 4 each; Thomas, Winton and Columbia, 5 each; Stevens-Duryea and Holsman, 6 each; Rambler and Autocar, 7 each; Pierce and Locomobile, 8 each; Ford, 9; Maxwell, 10; White, 12; Stoddard-Dayton, 14; Buick, 18; Mitchell and Packard, 21 each. Total cars, 240. Number of makers, 52.

Sunday—American, Adams-Farwell, Autocar, Brush, Cleveland, DeLuxe, Diamond T, Marmon and Moline, 1 each; Apperson, Kisselkar, Lambert, National, Pope-Toledo, Stearns and Stevens-Duryea, 2 each; Locomotive and Wayne, 3 each; Aerocar, Great Smith, Knight, Oldsmobile, Queen, Stanley and Thomas, 4 each; Northern, Peerless and Reo, 5 each; Cadillac, Columbia and Elmore, 6 each; Franklin, Locomobile, Mitchell and Studebaker, 7 each; Ford, Haynes and Rambler, 8 each; Pierce, Dayton and Sightseers, 11; White and electrics, 17 each; Maxwell, 12; Buick, 13; Packard, 14; Winton, 16; cars I couldn't name, 23. Total cars, 269. Number of makers, 46.

Subscriber.

REMOVES RADIATOR SCALES

St. Joseph, Mo.—Editor Motor Age—Through the Readers' Clearing House will Motor Age inform me what solution to use to dissolve scale in waterjackets on a gasoline engine.—George J. BeGale.

Caustic soda is one of the most commonly used scale solvents. The water circulating system may be cleared of impurities after running with dirty water by filling up the tank with a strong solution of regular washing soda. Run the engine for a few minutes and draw off the soda water; then wash out with clean water. The scale which forms in a waterjacket is due to the presence of salts in the water—carbonates and sulphates of lime and magnesia for the most part, which are precipitated when the water is heated; therefore, in order to fully determine the kind and quantity of the preparation to be used for the above purpose, it is necessary to have a chemical analysis of the water.

MAKING THE KNIGHT ENGINE

Decatur, Neb.—Editor Motor Age—Through the Readers' Clearing House will Motor Age tell me if the Knight engine is made in the United States, and if so, by whom? Has any party or parties acquired the rights to build cars with the Knight engine in this country? I am anxious to see the old poppet valve gasoline engines go out forever. I want a new machine, but will not get one until I can secure something better than the poppet valve engine.—P. B. Gordon.

The Knight engine is, at present, being manufactured in this country by Knight & Kilbourne, 1240 Michigan avenue, Chicago. The rights to manufacture this motor under royalty has not as yet been sold to any concern in America.

CRITICIZES A. L. A. M. FORMULA

New York—Editor Motor Age—In Motor Age, May 20 issue, C. H. Taylor upholds the A. L. A. M. horsepower rating, stating that it fairly represents good modern motor practice. It is evident, however, that the A. L. A. M. formula overrates the power of small motors and underrates that of large ones. This is due to the fact that the rating is based on the fallacy that the number of revolutions of a motor vary

inversely as the bore. The motor of the baby Isotta, with its bore of 62 millimeters, 2.44 inches, would have to make over 2,400 revolutions per minute to develop its rated power, and the motor of the 75-horsepower C. G. V. touring car would develop its rated 65-horsepower at less than 950 revolutions per minute. In England the deficiencies of the formula are acknowledged and the Society of Motor Manufacturers and Traders recently held a meeting to decide upon a more accurate horsepower rating. In my opinion the formula suggested on page 20, Motor Age, issue April 1, is infinitely superior to that of the A. L. A. M. in that it directly considers the stroke of the motor. While possessing this important advantage the formula is quite as simple as that of the A. L. A. M.—John Jay Ide.

COMMUTATOR CONSTRUCTION

La Fayette, Ind.—Editor Motor Age—Will Motor Age advise me what experience and test has shown to be the advantage of raybestos over leather as a facing for a cone clutch? Is there in existence a commutator for a four-clinder engine which will, with proper lubrication, run from 8,000 to 10,000 miles without the material in which the contacts are imbedded developing such irregularly worn surfaces that the cylinders fire irregularly? The form of commutator I am using is what is known as the Lacoste, is of good workmanship, with gutta-percha insulation, but it is not good for 4,000 miles. Will Motor Age tell me what are the constructive principles of the commutators on the Peerless, Packard, Stearns and Renault cars, and their comparative merits? What is the best material of which to construct the non-conducting parts of a commutator, and that shows the least wear from the roller or traveling contact maker? A frank and full reply will not only be appreciated by myself, but by thousands who have been afflicted by short-lived commutators.—Ray Sanders.

Extensive brake tests were conducted during the past fall with different braking materials. With raybestos the motor car was stopped at 74 feet 10 inches, and with other braking surfaces greater distance was required. With cast iron it was impossible to skid the wheels immediately the brakes were applied. Hickory blocks were tried, but with these, too, immediate locking of the wheels was impossible. Camel's hair proved most valuable. With leather the results are not so satisfactory. What holds true in brakes will hold true in cone clutches, and there is no reason why raybestos should not give most satisfactory results. One of the big manufacturers has already announced the use of a dry-plate clutch on its 1910 car and it is understood some form of fabric lining is used between the clutch plates, which eliminates entirely the necessity of lubricating the clutch. Motor Age has no record of a commutator that has given the length of service of which you speak, and the roller type which you use is one of the most satisfactory. On Stearns cars the Leavitt type of commutator is used. On Packard engines the roller type is used, and on Renault a commutator is not used. The best insulating material for a commutator is hard rubber or different grades of fiber and the amount of wear on either depends largely on the construction and manufacture of them. Several cases have been noted where fiber wore better than rubber, and vice versa.

A. L. A. M. HORSEPOWER TABLE

New York—Editor Motor Age—Referring to Mr. Taylor's correction in Motor Age, issue May 20, relative to A. L. A. M. horsepower formula, the following table showing different horsepowers according to the A. L. A. M. formula may be of interest to readers of Motor Age. These figures apply to four-cycle engines only, and in order to smiplify the table the horsepower figures are approximate, but correct within 1/16.—Coker F. Clarkson.

BORE		HORSEPOWER			
INS.	M/M.	1 CYL.	2 CYLS.	4 CYLS.	6 CYLS.
2½	64	2½	5	10	15
2⅝	68	2⅞	5¼	11	16½
2¾	70	3	6	12 1/16	18½
2⅞	73	3 1/16	6⅛	13¼	19⅝
3	76	3⅛	7¼	14⅜	21⅛
3¼	79	3 5/16	7 3/16	15½	23 1/16
3½	83	4¼	8½	16 9/16	25⅛
3⅝	85	4 9/16	9⅛	18¼	27⅜
3½	89	4 9/16	9⅛	19⅜	29⅜
3⅝	92	5¼	10½	20¼	31⅜
3¾	95	5⅝	11¼	22½	33¾
3⅞	99	6	12	24	36 1/16
4	102	6⅜	12¾	25⅜	38⅛
4¼	105	6 13/16	13⅝	27¼	40 9/16
4⅜	108	7¼	14½	28 9/16	43⅛
4⅜	111	7⅜	15 5/16	30⅜	45 1/16
4½	114	8 1/16	16¼	32⅜	48⅝
4⅝	118	8 5/16	17⅛	34¼	51⅜
4¾	121	9	18	36 1/16	54 1/16
4⅞	124	9⅛	19	38	57
5	127	10	20	40	60
5⅛	130	10½	21	42	63
5¼	133	11	22	44 1/16	66¼
5⅜	137	11 5/16	23	46	69 1/16
5½	140	12 1/16	24¼	48⅜	72⅜
5⅝	143	12 9/16	25 1/16	50⅜	75⅛
5¾	146	13¼	26½	53	79¼
5⅞	149	13 13/16	27 5/16	55¼	82 9/16
6	152	14⅜	28¾	57½	86⅛

GASOLINE CONSUMPTION

Burton View, Ill.—Editor Motor Age—Through the Readers' Clearing House will Motor Age state whether the White steamer uses more gasoline according to horsepower than a gasoline car? Is the cost of upkeep greater? Is there a demand for good chauffeurs, and if so, why?—Chauffeur.

In the 1,000-mile reliability trial, conducted by the Chicago Motor Club last October, a close count was kept of the fuel consumption of the different cars, the performance being as follows for the 1,000 miles on a 20-mile an hour schedule: White, weight 4,765 pounds, 153 gallons, pound mileage 134.5; White, weight 4,630 pounds, 145 gallons gasoline, pound mileage 137.9; Pierce, weight 5,575 pounds, 125 gallons, pound mileage 187.5; Marmon, weight 5,060 pounds, 119 gallons, pound mileage 187.5; Haynes, weight 4,000 pounds, 94 gallons, pound mileage 184.5; Franklin, weight 3,255 pounds, 70.5 gallons, pound mileage 200; Premier, weight 3,585 pounds, 69 gallons, pound mileage 224. In this contest all of the cars carried full pasenger loads and equipment. It is difficult to estimate the gasoline consumption per horsepower, not knowing the exact amount of horsepower required to propel the different cars during the contest. There is a demand for good chauffeurs, one reason being a good chauffeur can keep a car in much better condition than is possible by having uninterested garage attendants do such work. A good chauffeur detects troubles before they have worked an injury to the car, and thereby greatly increase the life of a machine.

REMOVING STUCK PISTON

Stevens Point, Wis.—Editor Motor Age—I noticed the answer of Motor Age, issue May 20, to my question, and its reply was that I should buy a new cylinder. How about the piston? I suppose that Motor Age means that I should smash the cylinder and thereby secure the long-wanted piston. Is it not possible that the piston may be pulled out by putting a jackscrew on the cylinder end and getting hold of the bearing on the piston rod, thus forcing the rings together, or breaking them?—G. W. Androe.

The following communication from L. J. Strait may have some bearing on the situation.

Humboldt, Ia.—Editor Motor Age—In Motor Age, issue May 20, I noticed that G. W. Androe, of Stevens Point, Wis., is having trouble with a piston being stuck in the counter bore. This is not an uncommon thing. I have taken out several without breaking or injuring any of the other parts. The best way is to remove the spark plug screw in a nipple and attach a force or hydraulic pump, such as are used to slush White steam generators, and pump water into the combustion chamber. The piston will come out at every stroke of the pump and no harm will be done; or, it can be pulled with a jackscrew by fastening the jack and cylinder apart and pulling with the screw.—L. J. Strait.

REMOVING THE PISTON

Hendersonville, N. C.—Editor Motor Age—Through the Readers' Clearing House allow me to suggest to Mr. Androe a plan by which he can remove a piston with the expanded ring from the cylinder of his Buick car. Remove both valve cages from the head of the cylinder, take two small tools like screw drivers; put one through each cage hole, catch ring on each side of gap, compress the ring and draw piston. I have used this method myself, and would be glad to have Motor Age state, through these columns, if it thinks it practicable, as it may be of service to others.—J. W. Samthers.

Velie Thirty 1909 Touring Car

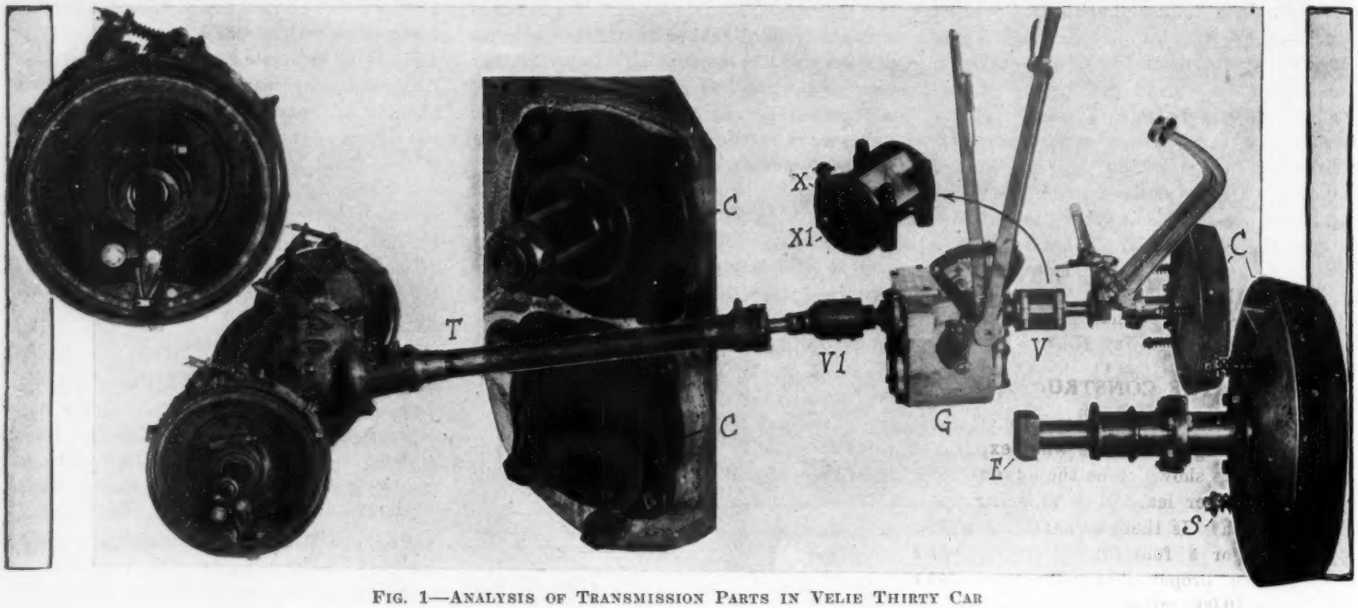


FIG. 1—ANALYSIS OF TRANSMISSION PARTS IN VELIE THIRTY CAR

THE Velie Motor Vehicle Co., Moline, Ill., is one of the latest manufacturing companies to enter the field and manufacture cars in quantities of upward of forty a week. Its first car was placed on the market last October, and since then the manufacture has been constantly pushed until the present time. The Velie 30 is a medium-priced light-weight car, with the chassis suitable for roadster, touring car and toy tonneau bodies, which no alteration other than changes in wheel sizes. The car with its four-cylinder 4 by 4-inch motor has a formula rating of 25.6 horsepower; its transmission system combines a conventional cone clutch, selective gearset and shaftdrive; its framework construction includes I-beam front axle, semi-floating rear axle with main frame dropped in front of the rear axle and supported at the rear on three-quarter elliptic springs, and, in addition the car as such constructions as double ignition, motor-contained oiling system, pump water circulation and double rear wheel brakes.

Description of the Motor

The motor is a symmetrical and conventional design, the twin cylinder castings having both sets of valves on the right side, operated from one camshaft. The crankcase is not the two-part construction so frequently used, but a one-piece box-like construction with end plates for holding the bearings of the crankshaft. The different motor accessories are well distributed, the Splitdorf magneto on the left rear motor arm, with a centrifugal water pump well forward on the same side, both driven through a common shaft; on the right are the manifolds and carbureter, with the commutator and oil pump at the rear on this side, one at the top and the other at the bottom of the short vertical shaft driven from the camshaft. The fan, belt-driven from the pumpshaft, is supported on a pedestal carried on the crankcase and has an eccentric adjustment for the belt.

In the oiling system few parts are required. The oil is carried in a reservoir beneath the crankcase at the rear of which is the oil pump OP, Fig. 4, which elevates the oil through a sight feed on the dash, whence it is returned to the left center of the crankcase at O, Fig. 2, where it is distributed on to the central bearings and flows into the front and rear compartments of the crankcase where a splash is maintained to care for the other bearings, and the cylinder walls and pistons. The overflow from the crankcase returns to the oil reservoir, where it is re-filtered and recirculated.

Two Sets of Plugs Used

The ignition system has two sets of plugs carried over the intake and exhaust valves, the motor illustrations, however, showing but one set in place. The low-tension Splitdorf magneto, in conjunction with a non-vibrating coil carried on the dash, constitutes one system; and a storage battery system in connection with the timer and the four-unit coil on the dash comprises the necessary parts of the other system. The spark timing in each is through one leverette above the steering wheel.

The carburation and water systems are conventional, the mixture control resting

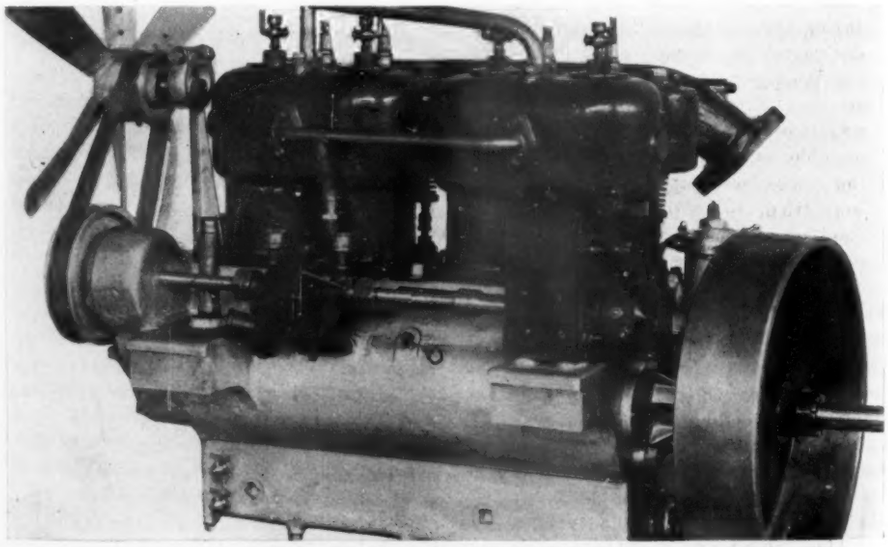


FIG. 2—NON-VALVE SIDE OF VELIE THIRTY MOTOR

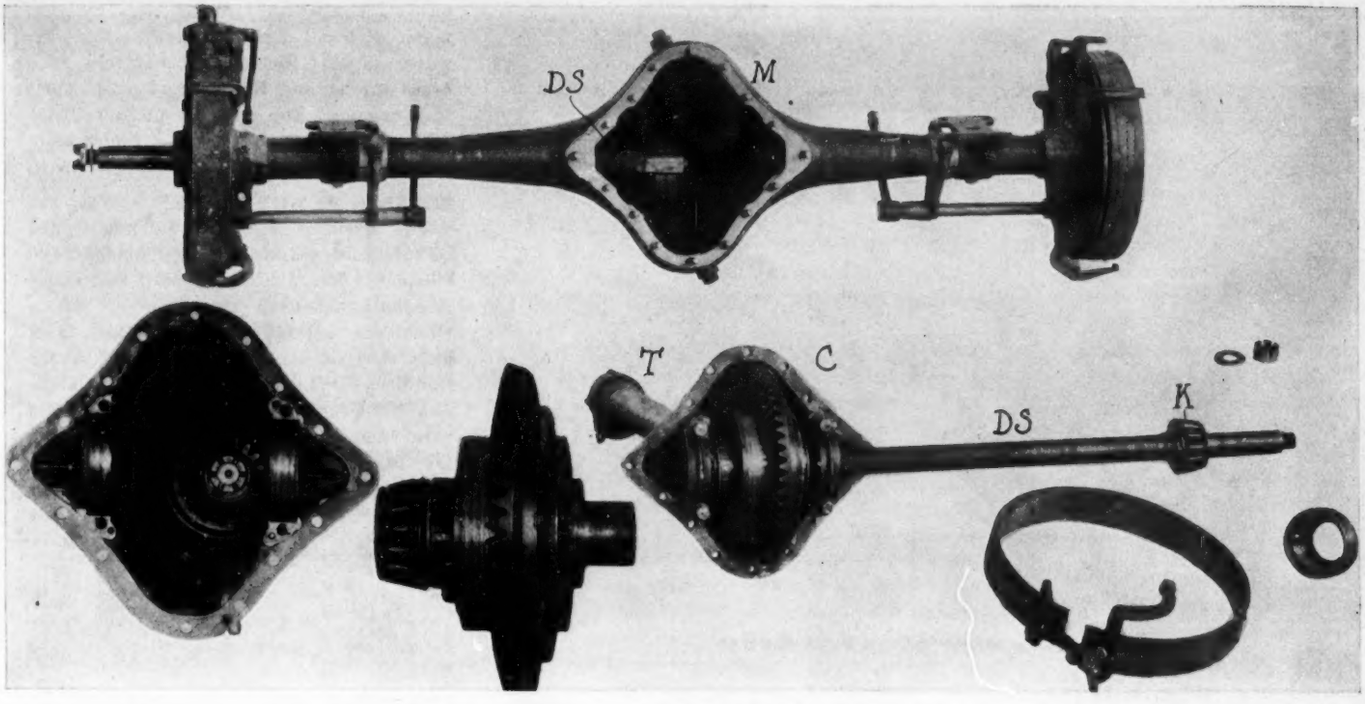


FIG. 3—ASSEMBLY OF REAR AXLE IN VELIE THIRTY CAR

with an accelerator pedal and steering-wheel leverette; and the water-cooling system combining the essential parts already mentioned in connection with a vertical-tube radiator.

Structurally considered the motor has several points to which attention should be called. By locating the magneto on the left rear motor arm, the necessity of a special bed plate is eliminated; by carrying the intake and exhaust manifold particularly high and the carbureter fairly low, Fig. 4, all of the eight valve springs are readily accessible; the camshaft is carried on Hess-Bright bearings, as is the shaft driving the pump and magneto; all of the timing gears are inclosed; and the end bearings of the crankshaft are nickel babbitt bushings, not of the split type, but one-piece tubular design, whereas the central bearing is a conventional two-part boxing. In assembling the motor the crankshaft is put in endwise. Inspection plates of any nature in the crankcase are not used.

Make-Up of Transmission

The entire make-up of the transmission is well illustrated in Fig. 1, starting as it does with the leather-faced cone clutch C, in rear of which is the slide coupling V between the clutch and selective gearset. In rear of the gearbox G is a universal V1 and back of which the propellershaft is inclosed in a tubing T, there being Timken roller bearings in the forward end of this tubing. The clutch adjustment is by a series of three regularly-spaced springs S. The slide coupling V consists of upper and lower halves X and X1, within which is a bushing and which works on the squared end E of the clutchshaft. A novelty in the transmission set is that both shafts are carried on short series Timken roller bearings, these bearings being carried in cages C, each of which is secured to the gearbox by four studs instead of by threading, as is so frequently done. In the gearset a non-conventional construction is that the part of the mainshaft in front, serving as a continuation of the clutchshaft, is reduced in diameter and continued to the rear of the case within the hollowedout mainshaft proper, thus having a bearing practically the length of the case. Special facilities for oiling this gearing are furnished in the way of drilled holes through the mainshaft, which is of hexagon form and carries the two sliding units. Direct drive is obtained by jaw clutches on the forward sliding unit and corresponding clutches on the master gear on the front shaft.

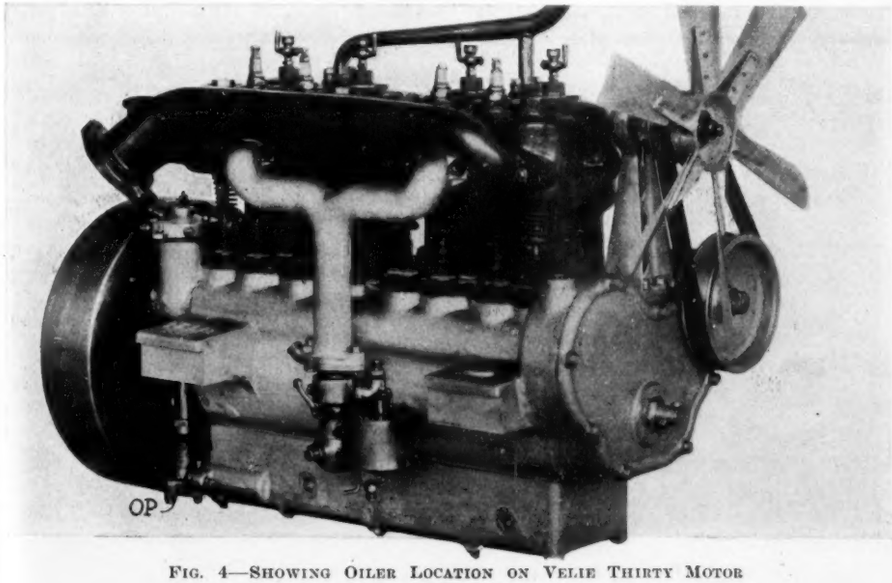


FIG. 4—SHOWING OILER LOCATION ON VELIE THIRTY MOTOR

Rear Axle Construction

The rear axle construction, Fig. 3, is unique in that it is a semi-floating design which may be explained as follows: Each of the driveshafts DS is squared at its inner end and may be withdrawn from the differential, but this cannot be done without first removing the wheel, because the Timken bearing K is secured to the shaft and does not permit of withdrawing the shaft endwise with the wheel in place. Still another feature is that the complete differential is carried in the cap C and not in the casing proper M, this cap being secured by a series of sixteen studs. The casing M is a one-piece construction with the tubular parts tapering heavily at the central expansion and gradually reducing to the normal size where the brakes are carried. The value of supporting the differential in the cap C is that it may be

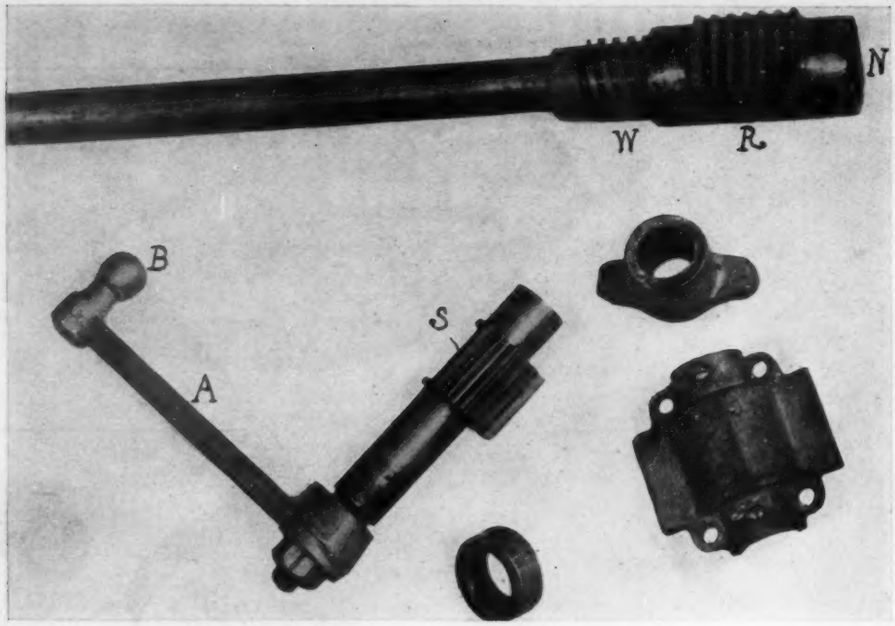


FIG. 5—VELIE STEERING GEAR DIS-ASSEMBLED

removed as a unit with the propellershaft and the propellershaft tubing T. To accomplish this it is necessary to jack up the rear axle, remove the road wheels, withdraw the driveshafts DS so that they are free from the differential, then detach the plate C and withdraw. This axle is made without truss rod of any nature and carries thermoid internal and external brakes. Owing to the absence of a torsion bar, or side radius rods, the drive is entirely through the rear springs.

Steering gear is a worm and nut design with worm W, Fig. 5, on the lower end of the steering column in mesh with which is a nut N. On one face of this is the toothed rack R meshing with the sector S on the radius shaft, and squared to the end of which is the arm A with ball ending B for connection with the steering knuckle.

WISCONSIN MOTORS

The Wisconsin Motor Mfg. Co., North Milwaukee, Wis., is manufacturing for the trade a four-cylinder type with twin cylinders 4¾-inch bore, 5½-inch stroke, having opposite valves, integral waterjackets and conventional two-part crankcase construction. The crankshaft is offset ¾ inch from the center line of the cylinder and has a 2-inch diameter throughout with rear bearing 4 inches long and the front and center bearing 3½ inches. Pistons are 6 inches in length and carry four ¼-inch rings. The valves are 2½ inches in diameter with 2¼-inch port openings. Connecting rods are forty-point carbon, as are the crankshaft and camshafts. Intake and exhaust valves are nickel alloy with ground bevel seatings and operated through steel tappets with hardened rollers, a spring holding the roller against the cam, and the upper ends of the tappets having adjusting nuts. The lubrication furnished is a contained system, the supply carried in a reservoir beneath the crankcase and delivered by gear pump to the main bearings of the shaft, and through the hollow shaft to the lower connecting rod bearings. Provision is made for carrying the magneto on the right front motor arm, so that the necessity of a separate bed plate is eliminated. The water circulation is by gear pump with polished brass intake and exit water pipes. The intake manifold is a brass tubing and the exhaust a one-piece iron casting. The motor is provided with a timer carried between the cylinder pairs on the left and driven from the camshaft.

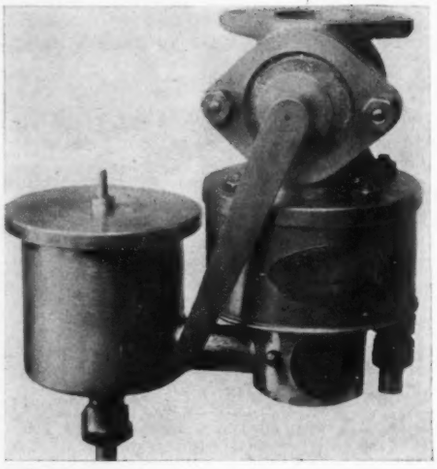


FIG. 6—EXTERIOR OF ENGLISH CARBURETER

BORBEIN READY BODIES

The Borbein Auto Co., St. Louis, Mo., manufactures a four-passenger roadster car, completed ready for the power and transmission plants and the tires. It has a wheelbase of 128 inches, I-beam front axle with annular ball bearings in the spindles; shaft drive construction with rear axle built for two and one-half to one gear ratio and carrying expanding and contracting rear wheel brakes. The wheels are fitted with rims to take quick-detachable tires of the 34 by 4-inch size. The body construction is characterized by seats located particularly low and with a heavy metal steel hood projecting rearward from the dash. The fenders are of the re-enforced metal type with short running board.

THE OHIO CAR

The Jewel Carriage Co., of Cincinnati, O., is manufacturing a four-cylinder car of conventional shaft-drive construction and having 4½ by 4½-inch cylinders. The cylinders are cast in pairs; the crankshaft is supported on three plain bearings; intake and exhaust valves are on one side operated from a camshaft located in the crankcase; thermo-syphon cooling is used; the ignition consists of a Splitdorf magneto with dry cells in reserve; the transfer of power from the motor to the road wheels is through a five-plate clutch with cork inserts, a three-speed selective gearset and shaft drive. Double brakes are furnished on the rear wheels. The running gear is made with 110-inch wheelbase, 34 by 4-inch tires, I-beam front axle, Timken roller bearings in rear axle, and platform rear springs. The body is made for five-passenger accommodation.

JAMES MOTOR BUGGY

The J. & M. Motor Car Co., Lawrenceburg, Ind., manufactures the James motor

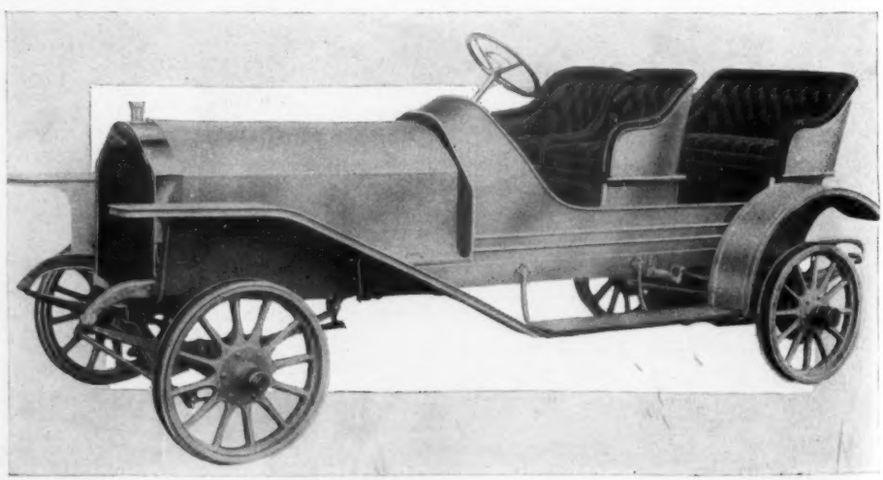


FIG. 7—BORBEIN BODY READY FOR POWER PLANT

buggy, which is a two-cylinder, air-cooled type, with the motor mounted transversely in front, and with drive through a planetary gearset and shaft to the rear axle. Three models are manufactured, all employing 4¼ by 4-inch, two-cylinder, air-cooled motor. Magneto and dry cells are furnished for ignition, and lubrication is by mechanical oiler. The three models have 90-inch wheelbases, 36 and 38-inch front and rear wheels with 1¾-inch solid rubber tires, and the weight is placed at 1,500 pounds. One model is a three-passenger roadster; another is a runabout, and the third is a surrey. Full elliptic springs are used all around in all models, and steering wheels are furnished. The rear axle, a Weston-Mott construction, is furnished with expanding brakes.

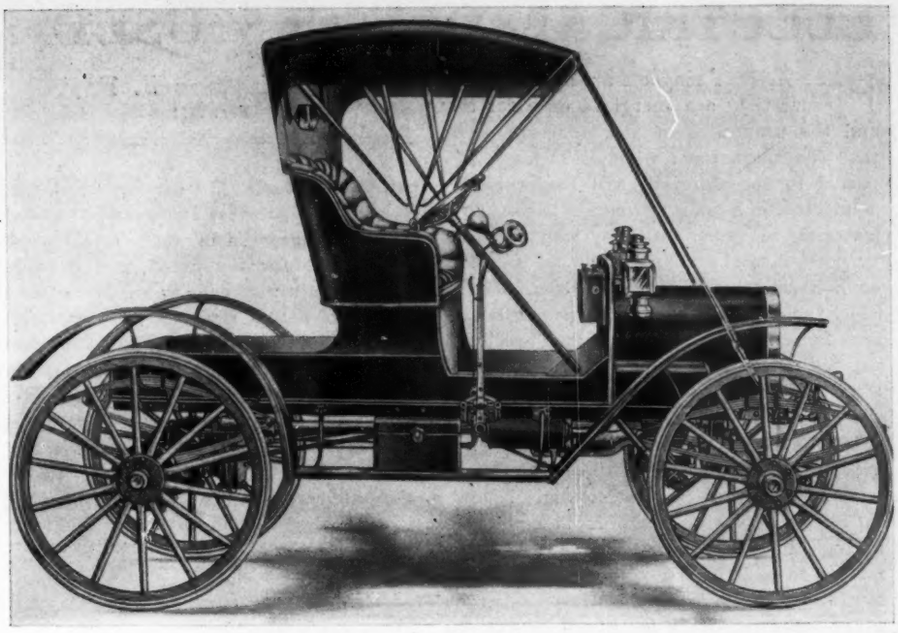


FIG. 8—JAMES MODEL C MOTOR BUGGY RUNABOUT

ENGLISH CARBURETER

A novel carbureter, constructed at Streatham, S. W., in London, Figs. 6 and 9, has a gravity air valve in the mixing chamber. This carbureter is of the variable-jet type, in which the air velocity and the flow velocity of the liquid are automatically maintained at a constant speed, consequently it only remains for the volumes of air and the liquid to be varied in a fixed ratio to each other; this is accomplished in the following manner: An air-regulating float, of a predetermined weight, is free to rise or fall in the guide G and the interior of this float contains the jet-regulating needle N, which is free to move within the gasoline nozzle. Assuming the throttle T to be partially open, just enough to keep the engine running light at a slow speed, the air is drawn past the small holes at the base of the air-float, inside which it creates a partial vacuum which causes the gasoline to flow from the jet past the regulating needle and out of the small holes H in the air-float, where it meets and mixes with the ingoing air, thus forming the explosive mixture.

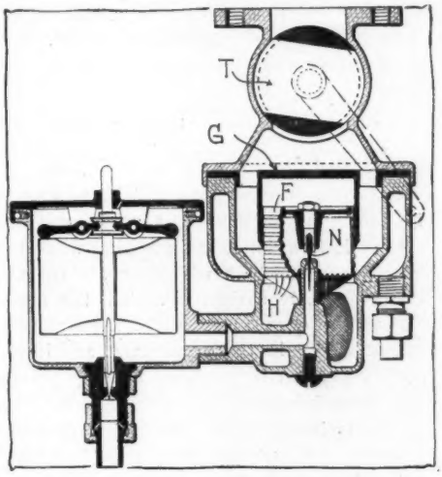


FIG. 9—SECTION OF ENGLISH CARBURETER

Next assume another position of the throttle, say, at half load; the function of the carbureter is to supply the exact amount of air and gasoline necessary to develop the required horsepower, which in this carbureter is achieved as follows: Immediately the throttle is opened there is a tendency for the velocity of the air to increase; the air-float, however, being free and its weight predetermined, it rises in its guide until the air velocity reaches its requisite speed, when the air-float remains in equilibrium until the throttle is opened more, or less, and it then rises or falls, as the case may be, synchronizing with the opening or shutting of the throttle. It will be readily seen on referring to the sectional illustration of the carbureter that as the air-float rises or falls it carries with it the jet-regulating needle, so that when the air-float rises to the required position the needle rises with it and allows a greater volume of gasoline to pass in current ratio to the larger volume of air. The current quantity of gasoline delivered according to the volume of air being of the utmost importance. The jet-regulating needle is so proportioned as to deliver this quantity from no load to full load and vice versa. This proportion has only been arrived at after a considerable amount of experimenting, each size needle having been tested in a specially designed instrument and the gasoline measured with the utmost accuracy to correspond with the required volume of air in every conceivable position that the float may have to assume. It is held that the advantages of this carbureter are economy, flexibility and quiet running of the engine. A few actual results will show what has been accomplished from a gasoline consumption point of view. These results were taken under ordinary touring conditions, or in the case of the vehicles being used for business purposes, during their ordinary round.

Horsepower	Consumption in miles per gallon on new carbureter	Consumption on old carbureter
18-22	28	20
15	26	17½
19-25	20	11
15-20	23	16
24	18½	12
18	26	13
35-45	19	15
35	19	11

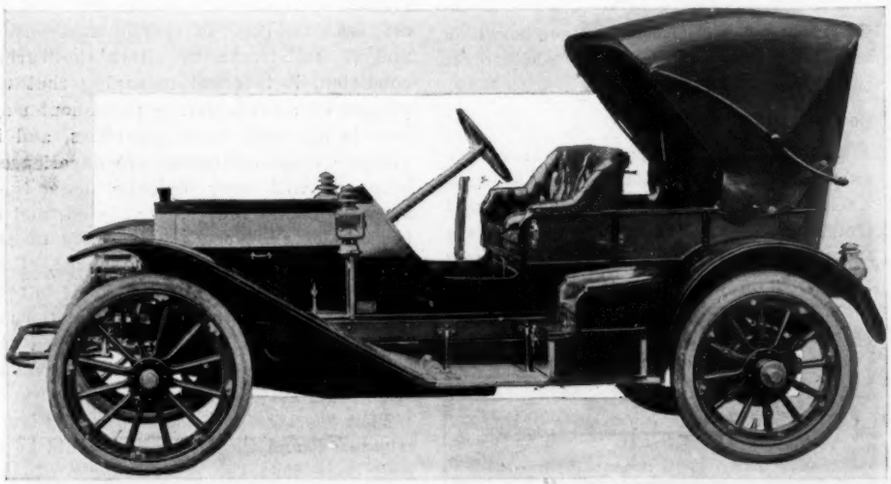


FIG. 10—MOON MOTOR CAR CO.'S THIRTY TOYTONNEAU WITH VICTORIA HOOD TOP

ELECTRICAL DEVICES USED IN MOTOR CARS

By Thomas J. Fay
Part VIII

PERMANENT magnets are so called because they are energized once for all and the properties of the steel are such that the magnetism, when it is once imported to the material, will render itself manifest for a long period of time. The material, in order to serve well for the purpose, must be as retentive as possible on a basis that is said to be permanent. Steel for electro-magnets, requires to be as free from retentive properties as possible, for the reason that the more retentive the steel, the lower the saturation limit, and the higher the magnetic reluctance, which is another way of saying that the permeability of the steel will be low. When it is said that the saturation limit is low in highly retentive steel, it is equal to saying that the result of the magneto-motive force is not so effective as will follow if the reverse holds true. On the other hand, if the steel is not retentive it will not act as a permanent magnet and the only magnetic manifestation that will follow, after the exciting force is withdrawn, will be that due to the residual magnetic field, which is present in magnetic material of the even highest permeability. The essential difference, then, between permanent magnets, and materials suitable for use as electro-magnets, lies in the properties that are rendered manifest in the phenomenon called retentiveness.

Permanent and Electro-Magnets

It will be understood that the difference between a permanent and an electro-magnet lies in the fact that an electro-magnet will only remain in a state of saturation during the time the magneto-motive force is applied. In other words the electro-magnet is provided with a coil, and when a current of electricity is circulated in the coil, the magneto-motive force thus set up will produce a magnetic flux to correspond. It is unfortunate perhaps that permanent magnets are low in point of magnetic flux as they show increased retentiveness; the result is that the density of the magnetic flux will be low in the permanent magnets that are highly retentive. In magneto work, then, it is the aim to follow along the path as dictated by compromise measures, using steel that is sufficiently retentive to satisfy practical considerations, and to the extent possible, limiting the magnetic retentiveness with a view to affording the maximum flux density in the steel.

Select Proper Grade of Steel

In electro-magnetic work, steel—magnetic material—is selected on a basis of high permeability, for then the minimum magneto-motive force will produce the maximum flux density in the section of the material. In permanent magnets, this very excellent rule has to be abandoned in order to realize a suitable degree of retentiveness, which property, as before stated, is not present in the class of material that gives the greatest results per unit of magneto-motive force. In permanent magnets it is of the greatest importance to select a grade of material in which retentiveness is adequate for the needs, and in which the magnetic flux density will be a maximum. In actual practice it is generally the case that the retentiveness is far short of the needs, and in many cases the flux density is below a fitting standard as well. When both of these properties are absent it is a sad state of affairs, and the magneto so afflicted affords a liberal measure of trouble and nothing else worth recording.

Carbon Steel Used For Magnets

That carbon has a marked effect of magnetic retentiveness is shown to an adequate degree when soft Swedish iron is experimented upon, and it is found that it is quite devoid of magnetic retentiveness. This grade of iron, when it is subjected to a chemical analysis, shows about as follows:

Carbon .005	Silicon .01	Sulphur .01	Phosphorus .01
Manganese .028	Copper trace		Arsenic trace

Material such as this will be so low in magnetic retentiveness that almost no magnetic flux will remain behind when the exciting current is withdrawn. On the other hand, if carbon is added, the material will at once indicate that the magnetic retentiveness is on the increase, and if the carbon content is increased to sixty points, the retentiveness will be enough to class the material with that used for permanent magnets. When the carbon is increased beyond a certain level, say 150 points, the value of the material for permanent magnets is reduced to a low ebb, due to the low plane to which the permeability falls. If the material is not pure, that is to say, if sulphur, phosphorus, copper and arsenic, are high, the magnetic performance will be below a fitting standard, and in fine, the best results seem to be along lines involving the use of iron or steel in which the impurities are reduced to the merest trace, at most.

Pearlitic Steel Retentive

Steel in which the carbon content is ninety points, is regarded as 100 per cent pearlite, when the same is in the normal state, and from experience thus far afforded it is a fair inference that magnetic retentiveness will be maximum in such steel, if the same is properly heat treated. In a general way, then, the conditions as follows would seem to hold, for carbon steel:

The highest permeability will be attained in steel—of the carbon genera—if the product is the nearest approach to pure ferrite.

Retentiveness will be a maximum in the product that is the nearest approach to 100 per cent pearlite.

Excess ferrite which is the carbon condition that abounds when the carbon content is below ninety points, has the effect of reducing the retentiveness of the steel so that the carbon content should not fall far below ninety points, unless it can be shown that carbon above 150 points will alter the situation.

It is not believed that carbon in excess of 150 points will prove to be advantageous, yet even so, experiments are lacking in this connection on steel with the carbon in excess of this value. In all of the above statements the steel is assumed to be in the normal state; when the material is hardened the carbon condition changes and the behavior will then depend upon the condition established as a result of the heat-treatment. In the light of present knowledge it would seem as if the best results will follow the use of steel with the carbon not higher than ninety points, and there is one condition that would seem to demand that the carbon be somewhat even lower.

The flux density in the steel will be higher in steel with lower carbon than it will be if the carbon is held at ninety points; since it is an advantage to have the flux density higher—as high as possible, in fact—the probabilities are that the steel will deliver the best result if the carbon is kept well below ninety points, and sixty points might be a good low level. The objection to having the carbon lower lies in the ease with which the steel demagnetizes. The plan, then, is to keep the carbon as low as possible, and at the same time realize a permanent magnet that will not demagnetize too readily.

Hardening Must Be Considered

If it is true that pearlite is the carbon condition which will produce the best result from the point of view of flux density, and if heat-treatment alters the carbon condition, it is equal to saying that the process of manufacturing permanent magnets is attended with difficulties, and in practice these difficulties are experienced. Magnets will very quickly loose their strength unless they are hardened, and in the hardening process the ability of the steel to hold magnetism is reduced. Considering this anomaly, it is difficult to realize the results that should follow the use of steel in the pearlite state, when the hardening process will reduce the steel to some other state.

That the steel will have to be hardened is assured, and the hardening should be so well done that the retentiveness will be sufficient to assure permanence, and up to

a maximum state of saturation. In order to assure the best results the part of the magnet that has to be hardened should be heated to the right point, uniformly, and the quenching should be most carefully done under favorable conditions. On the other hand, since hardening reduces the ability of the magnet, it follows that only the ends of the magnets should be hardened, especially in view of the fact that all the good that can be done by hardening will be due to end hardening only. How to harden the ends of the magnets without altering the condition of the rest of the materials in them is a matter involving some skill, and in practice the different makers follow their own bent, each with a method to suit his own views. In different shops highly different schemes are used, with what results only the magnetos show.

The parts not to be hardened can be covered with fire-clay and the heat can be applied to the protruding ends. When quenching is done the clay will protect the parts not to be hardened, and the ends will be rendered hard if the quenching temperature is high enough, and if the quenching bath is of the right medium, provided a certain amount of deftness accompanies the process. Mercury is the most efficient quenching bath, and it is the most poisonous material to dabble in. If this medium is used, the facilities should be suitable for the purpose, and that it is necessary to employ a very efficient bath is one of the certainties of the process. For quenching baths the following substances may be used in order of merit as named: Mercury, acidulated water—ice cooled salt water—salt water, water, mixture of water and skimmed milk, lime water, fish oil, cod-liver oil, and cotton-seed oil. All of the baths are to be held at the surrounding temperature excepting the ice-cooled salt water.

Carbon Conditions To Be Obtained

In normal carbon steel the carbon condition will be pearlite, with excess ferrite if the carbon content is below ninety points, and with excess cementite if the carbon content is above ninety points. Considering the several carbon contents the excess ferrite or cementite may be calculated in the manner as follows:

Let C = carbon content
c = cementite excess
f = ferrite excess
p = pearlite
When $c = C \times 15$
$f = 100 - c$
$p = (c \times 6.4) + c$

Practical Use of Formula

Considering carbon steel with a carbon content of ninety points, the following will hold:

C = 90 points
$c = 0.90 \times 15 = 13.5$
$f = 100 - 13.5 = 86.5$
$p = (13.5 \times 6.4) + 13.5 = 99.9$

Considering carbon steel in which the

carbon content is sixty points, the following will hold:

C = 60 points
$c = 0.60 \times 15 = 9$
$f = 100 - 9 = 91$
$p = (9 \times 6.4) + 9 = 66.6$

In like manner it is possible to determine the carbon condition for carbon steel of any known carbon content, but if the steel is not in the normal state, the formula will not serve for the purpose, and photo-micrographs will have to be taken instead.

Conditions That Follow Heat-Treatment

Primarily, it will be well to point out that the initial conditions are looked upon as follows:

Ferrite, which is the chief element in slowly cooled iron or mild steel is free iron. This element is always accompanied by other elements; in other words, free iron does not exist in a pure state in practice.

Cementite, which is classed as a carbide of iron, answers to the formula as follows:

$c = Fe_3 C$, when

C = carbon c = cementite, and Fe = iron.

Cementite is an intensely hard compound, and in high-carbon steel shows—under the microscope—in the form of whitish segregated masses, which, after etching, stands out as if embossed. With direct illumination cementite reflects with intense brilliancy, although, with oblique illumination, cementite is black. With a microscope then, cementite is easily detected, and photo-micrographs, magnified about 350 diameters, bring out the structure very clearly.

Pearlite is an intimate mixture—with a pearly luster—of ferrite and cementite, which may take on one of two forms as lamellar and granular. In pearlite which is as before stated an intimate mixture of ferrite and cementite, the ratio has been

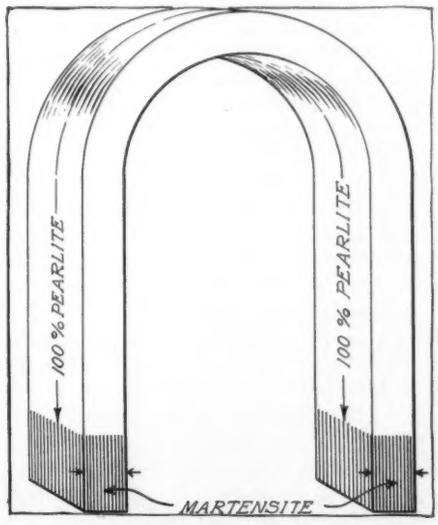


FIG. 16—CARBON STEEL PERMANENT MAGNET

determined as 6.4, which constant was used in the formula.

Martensite is a formation that follows quenching, and if the carbon content is ninety points, Martensite will be a maximum. Martensite will abound in steel with the carbon content as low as sixteen points, and will increase with the carbon content—up to ninety points—provided quenching is done from a temperature, somewhat above 820 degrees centigrade.

Hardenite is really an extension of the martensite structure, and is present in steel if the carbon content is in excess of ninety points, provided the quenching is done as in the development of the martensite structure. From the point of view of permanent magnets, hardenite is not of advantage, which is another way of saying that the carbon content should not be above ninety points.

Sorbite is a structural condition which follows if a martentistic product is subjected to an annealing process. This same sorbite is generally regarded as unsegregated pearlite, and represents an intermediate condition between cementite and ferrite. Sorbite would be present were the quenching indifferently done, or if the shape of the parts are such that it is not possible to quench to martensite.

Trootsite represents a condition which is somewhat different from sorbite, although it, too, is but a transition, in which pearlite is supplanted.

Austenite is a structure that is less hard than martensite, due to the presence of carbon in some quantity, above or below ninety points, and although the structure is not well defined, it is nevertheless possible to distinguish as between austenite and martensite.

In general, then, if martensite is the structural condition that is wanted in the hardened part of permanent magnets, it is of the greatest importance to pursue a course such as will assure the development of this structure, which is only possible if the carbon content is adequate for the purpose, if the quenching is done at the right temperature. Although the shape of parts will influence the situation in general, it is not likely to be a factor in this class of work, for the reason that the magnets are of a shape that lends success to the process.

Alloy Steel Is Best

Thus far, it has been the aim to explore the field from the point of view of carbon steel, although it is true that the best results seem to follow the use of alloy steel. It has been found in practice that certain of the alloying elements have certain effects; for illustration, vanadium serves to render the steel capable of attaining a higher degree of saturation for a given magneto-motive force, which is a matter of the greatest importance in connection with the core of the transformer, whereas tungsten has the ability to add to the retentiveness of the steel, and allows of some reduction in carbon, thus increasing

the saturation limit, without a corresponding loss in retentiveness.

If impurities are not wanted in carbon steel the same rule holds in connection with alloy steel, but to a far more marked degree. In transformer cores, for illustration, fatigue will be much more marked if the metal is not free from metalloids, as sulphur and phosphorus, which metal fatigue is very undesirable, since the saturation limit is decreased in time, in consequence, and for a given flux density the magneto-motive force must be increased. In permanent magnets, if alloy steel is used, and if it is not free from metalloids, the flux density will be lowered, and the retentiveness will fall off as well.

Alloy Steel in Permanent Magnets

Tungsten	Carbon	Silicon	Sulphur	Phosphorus	Manganese
5.7	60-70	.12	.03	.02	.40
5.7	70-80	.11	.025	.015	.35
5.7	80-90	.10	.012	.013	.30
5.7	85-95	.09	.011	.010	.30
7.5	60-70	.12	.03	.02	.40
7.5	70-80	.11	.025	.02	.35
7.5	80-90	.01	.012	.013	.30
7.5	85-95	.09	.011	.010	.30
12.5	60-70	.012	.03	.02	.40
12.5	70-80	.11	.025	.015	.35
12.5	80-90	.10	.012	.013	.30
12.5	85-95	.09	.011	.010	.30
22.5	60-70	.12	.03	.02	.40
22.5	70-80	.11	.025	.015	.35
22.5	80-90	.10	.012	.013	.30
22.5	85-95	.09	.011	.010	.30

There is a trace of copper and arsenic in each sample.

The presence of tungsten does not admit of the elimination of carbon, or can the carbon content be reduced below sixty points even if the tungsten content is high. There are other prospects that take into account the use of alloys, but the practical situation is adequately satisfied if the tungsten content is well adjusted, in the presence of at least sixty points of carbon, provided the steel is otherwise suited to the occasion.

No form of basic steel can be regarded as of any value in this class of work; for this reason it is quite out of the question to expect any good results from bessemer steel, by the basic process, or is acid bessemer good enough to afford the best results. Basic open-hearth steel will be no better than bessemer, with basic linings, and although acid open-hearth steel is far superior to either of the bessemer products, the fact remains that crucible steel holds forth the greatest possibilities, especially if the steel is made in small quantities, much the same way that the better grades of tool steel are made.

True, the cost of the steel will be greater if it is made in a manner similar to the prevailing practice in the production of superior tool steel, yet even so, the prices paid for magnetos takes into account the use of the best materials that can be devised. Besides the process of manufacture of the steel, there is something in the con-

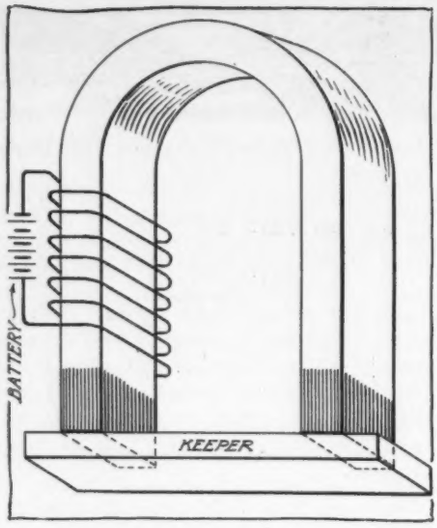


FIG. 17—MAGNETIZING MAGNETS

tention that quality resides in the raw materials from certain mines, in excess of that which is to be expected from materials that hail from other sources. It is for this very reason perhaps that magnetos from abroad have made a substantial name for their makers, due to the excellence of the ores that come from Stiria and certain other places, in Germany, Austria and other continental states.

Magnetizing After Hardening

When the magnets are fashioned and hardened they are then subjected to the magnetizing process in order to energize them. This process is conducted in the different establishments in divers ways. Fig. 17 shows a horseshoe magnet, with a coil of wire wound around one branch of it, and a keeper, of soft iron placed across the two branches, to complete the magnetic circuit.

The coil of wire is connected to a battery so that a direct current flows through the coil, and the magneto-motive force thus set up will induce a magnetic flux in the magnetic circuit. The magneto-motive force should be so great that the iron will be saturated, and the time the current should be allowed to circulate, should be great enough to assure that the magnetic flux will swell to a maximum. The current should not be reduced quickly; on the other hand, it is the proper course to allow the current to die slowly, and the operation should be conducted as many times as it can be shown that the magnets will retain an additional quantity of magnetism, which will be indicated by the lifting power of the magnets, after the current is withdrawn, as compared with the lifting power when the current is flowing in the circuit.

The coil can be but a few turns of insulated copper wire, provided the source of current is adequate for the purpose, and a storage battery makes a very good source of the same, because of its relatively great ampere capacity. The permanent magnet that will lift the greatest weight is the best one to use, provided the same will not quickly reduce in ability, which, if it does, is a sign of inferior retentiveness. Much has been said regarding the ability of magnets to retain their magnetism, and on this problem the magneto manufacturers have tried divers schemes.

In actual practice it is easy enough to establish a standard to go by, and that the standard should be a good one is a matter that will require little discussion. The lifting power of magnets may be found in the manner as follows:

Let P = lifting power in pounds,

A = area of polar face in square inches,

B = magnetic flux density in lines per square inch, when

$$P = \frac{B^2 A}{72{,}134{,}000}$$

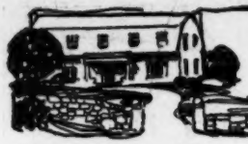
Lifting Power of Electro Magnets

B = Lines per square inch	P = Pull in pounds per square inch
1,000	.577
2,000	2.308
3,000	5.190
4,000	9.228
5,000	14.39
6,000	20.75
7,000	28.26
8,000	36.95
9,000	46.72
10,000	87.68

(To be continued.)

The Motorists' Bookman

"Huddy on Automobiles," a 364-page cloth-bound volume on laws relative to motoring, by Zenophen P. Huddy, of the New York bar, is out in its second edition. Its twenty-six chapters deal with the following aspects of the motor car with reference to the laws of the land: Historical, nature and status, right of motor cars to use highways and streets, registration and licensing, operation on highways, rights and duties and liabilities of garages, meeting and passing, overtaking, frightening horses, duty to stop motor cars, proof of speed, unlawful speeding, dangerous driving, defending speed cases, the garage and garage keeping, the chauffeur, the hire of motor cars, motor car legislation, federal control over motoring, safety of roads for motor cars, taxicabs and public service, etc. The book is a most valuable one as a text beek and guide for motorists who desire to familiarize themselves in general with the legal situation as applies to motoring. On practically every page are given decisions of the different courts throughout the country on cases pertinent to motorists, and which should serve as a guide to motorists before instigating legal action.



News from the Motor Clubs

LaCrosse in Line—The LaCrosse Automobile Club, of LaCrosse, Wis., will give its first annual outing for orphans of the city about June 5. The organization has a membership of sixty-five, with about forty prospects for the next meeting.

Club at Johnstown—The Johnstown Automobile Club, of Johnstown, N. Y., was organized May 7 with the following officers: President, Dr. C. B. Mosher; vice-president, John Johnson; secretary, G. Hillabrandt; treasurer, George Veghte.

Crusade Against Mischief-Makers—The Eau Claire Commercial Association, of Eau Claire, Wis., has started a crusade against persons who throw bottles, nails and debris of all sorts into the street. The last straw was the ruination of the tires on the car used by the secretary of the association, a new set of casings being cut to shreds by broken glass.

Ride For the Solons—The Madison Automobile Club, of Madison, Wis., plans to give all members of the legislature an outing during the next week, and before the assembly votes on the Page bill eliminating the speed limit, which has passed the senate without dissent. Seventy-five machines will be required for the outing.

New Club Promised—Owners at Grand Rapids, Wis., are getting together on the proposition of forming a club. Thirty have consented to join if the organization is effected. Efforts are being made by the Wisconsin Valley Automobile Club to induce the Grand Rapids owners to join the larger organization. The headquarters of the Valley club are at Wausau, Wis. The club will make its first run to Stevens Point on Memorial day.

Texans Organize—Motorists of the plains and panhandle country have organized a motoring body at Amarillo, Tex., the Panhandle Auto Association. The permanent officers elected were: R. C. Burns, of Lubbock, president; Will A. Miller, of Amarillo, vice-president; Mr. Larion, of Hereford, second vice-president; Mr. Pool, of Amarillo, secretary; Mr. Hand, of Amarillo, treasurer.

Columbus Active—At the annual meeting of the Columbus Automobile Club, of Columbus, O., May 11, Max Morehouse was re-elected president for the coming year. Perin B. Monypeny was elected first vice-president; Dennis Kelly, second vice-president; Norman O. Aeby, secretary, and Herman Hoster, treasurer. The last two-named officers were also re-elected. It was decided to hold the annual orphans' day, June 3, at the Columbus Country Club. As in former years the members of the club will take the little folks to the fine grounds of the country club for a day's picnic. The arrangements will be in charge of the club runs committee of which Perin B. Monypeny is chairman. The club will inaugurate special runs for Saturdays and Sundays about the first of June and considerable interest in that feature of the work is manifest.

Oshkosh Election—The Oshkosh Automobile Club, of Oshkosh, Wis., has elected the following officers: President, C. M. Robinson; secretary, G. E. Tyrrell; treasurer, L. Frank Gates; captain, Frank Stein. A number of club runs will be made during the summer.

St. Louis Picks June 9—The Automobile Club of St. Louis is planning to observe June 9 as orphans' day, as is a custom in other cities. Here the children who are thus benefitted will be taken into the invigorating air of St. Louis county. Provision will be made for about 1,000 children.

Columbus Selects June 19—The Columbus Automobile Club, of Columbus, O., has arranged to make June 19 orphans' day. The orphans at the various institutions of the Buckeye capital are taken for a day's outing, the guests of the club. The day will be spent at the Columbus Country Club.

Pittsburg Club Active—The Automobile Club of Pittsburg is making rapid strides in the way of membership. Since February 1 it has added sixty-two members to its list, making over 300 in all. For 2 years the club has done splendid work in Allegheny county. About $1,000,000 per year is now spent for making good roads and over 60 miles of macadamized highway are now being built. George T. Barnsley, county road engineer, is chairman of the road improvement committee of the club. Partly at his suggestion, the club gave a dinner last December for all the road supervisors of Allegheny county. Much enthusiasm was aroused at that meeting and the club offered $5 to every supervisor who would build a King split-log drag and give it a fair trial. The club also offered a first prize of $100, two second prizes of $50 each, four third prizes of $25 each to be awarded in October, 1909, for the greatest improvement accomplished by the use of the King road drag on selected stretches of road which were not to be less than 2½ miles long except in short stretches which connect macadamized roads. The roads were selected by the club committee consisting of George T. Barnsley, Reade W. Bailey and Joseph Faewell. As a result fifteen drags are now in use. Testimony from road supervisors show that these have reduced the price of making the roads from $35 to $8.50 per mile and that three men with a drag can do the work six men formerly did. Secretary Wolff and other officials of the club are now arranging with the supervisors of Mercer county, Pa., for the dragging of the road from Mercer to Zelienople, Pa., and Meadville, Pa.

Ohio Election—The annual meeting of the Springfield Automobile Club of Springfield, O., chose the following officers: Frank R. Packham, president; P. E. Montanus, vice president; George E. Mentel, secretary and treasurer. These officers, with Benjamin P. Johnson and George R. Prout, constitute the board of governors.

Port Huron Ambitious—Port Huron is the latest Michigan city to evince a desire for a motor club. J. R. Jackson, chairman of the membership committee of the Michigan State Automobile Association, has received a letter from prominent motor car owners in that city asking for the services of the state association in forming a club there and taking it into the association. Port Huron has about 300 motorists and believes it is time to organize.

Webster Starts a Club—Owners of Webster, 5 miles south of Worcester, Mass., have organized the Webster Automobile Club. The following officers were elected for the year: President, F. Irving Sears; vice-president, N. T. Hurlburt; secretary and treasurer, Arthur G. Pattison; directors, Dr. J. N. Roy, William Stewart and Clarence E. Cleveland. A committee was selected to have the club become affiliated with the American Automobile Association and draw up a set of by-laws.

Columbus Names Committees—Secretary Norman O. Aeby, of the Columbus Autobile Club, has announced the standing committees chairmen for the coming year. The committees are: Executive, Max Morehouse, chairman; club runs and racing, Perin B. Monypeny; entertaining and club rooms, A. J. Pray; finance, Herman Hoster; membership, N. O. Aeby; legislative, C. E. Firestone; good roads and signs, Harry Wolfe. The club will soon issue a monthly publication called the C. A. C. Bulletin. It will contain a road map each issue.

Utah Speedway Project—The proposition before the Automobile Club of Utah a month or so ago to build a speedway at a cost of $75,000 from Salt Lake to Saltair Beach, a distance of about 15 miles, but which was subsequently dropped on account of friction between the special committee to draw up plans and the board of directors, has been revived and progress is now being made toward the construction of the road. The speedway when completed, will be a straight 12-mile course, beginning at the outskirts of the city and going through private land all the way to Saltair. At the end of the course there will be erected a grand stand.

From the FOUR WINDS

GOVERNOR'S CUP WON BY FRANKLIN

OMAHA DAILY NEWS RELIABILITY CUP

Omaha Run Postponed—The Omaha reliability run for the News trophy scheduled for Tuesday was postponed because of wet weather.

Blue Book Pathfinding—The Thomas roadster that blazes the trails for the Automobile Blue Book is now in the northwest on a 4,000-mile jaunt. In charge of Messrs. Mixer and Dods, the car left Chicago May 19 for Omaha.

Denver Dates Changed—The Denver-Pueblo reliability tour for the Charles P. Allen cup which was originally set for May 28, 29 and 30, has been changed to June 11, 12 and 13. The delay of the E-M-F Glidden tour pathfinder in reaching Denver disarranged the plans of the motor club so that there was not sufficient time after the pathfinder left to arrange the details of the tour for the first date.

Fixing City Streets—Peter T. McNerny, of Toledo, superintendent of streets, finding it impossible with his facilities to keep track of all the bad spots which develop from time to time in the paved streets of the city, has invited the co-operation of the Toledo Automobile Club. The members of the club expressed a willingness to assist in this work and have been supplied with cards which they are expected to fill out and send to the superintendent's department whenever they run across a bad streak of road.

Rambler Picture Competition—One hundred dollars in cash prizes to Rambler dealers, owners and amateur photographers have just been awarded by Thomas B. Jeffery & Co. for photographs illustrating the pleasure and utility of owning a Rambler car. Several hundred photographs were received from all parts of the country. The prize winners are: Rambler Garage and Supply Co., Norfolk, Va.; W. K. Cowan, Los Angeles, Cal.; P. W. Lochmiller, Albion, Neb.; H. W. Brown, Tifton, Ga.; J. H. Linsley, New Haven, Conn.; H. W. Davidson, Marietta, O.; C. M. Willis, Auburn, Cal.; M. H. McCarthy, Somerville, Mass.; Arthur Cumings, Winthrop, Mass., and John S. Butzer, Ephrata, Pa.

Track For Atlanta—Atlanta's 2-mile motor track seems a genuine reality. At a meeting recently in Atlanta $100,000 was subscribed toward the fund to pay for the property and to put it in order. It is planned to have the grand stand and track finished by November and to have the first race run at that time.

Governor's Trophy—The trophy presented by Governor Stuart, of Pennsylvania, in the recent Harrisburg endurance run was won by C. S. Carris in a Franklin, who finished the 700-mile run with only 21 points in penalties. The trophy stands about 2 feet high and was hung up in the class for cars of above $2,250 value.

Milwaukee Wakes Up—The Milwaukee public library board of trustees has voted to purchase a motor truck. It was said at the meeting last week that a visit was expected from the Wisconsin Humane Society because the library's two-horse delivery wagon was put to harder tasks than the law allows. Daily trips must be made to each of the five branch libraries.

On Long Tour—One of the longest motor trips contemplated by an owner was started from Lowell, Mass., last week, when Mr. and Mrs. Ira H. Morse left for a trip across the continent and return. They are traveling in a Pope-Hartford and intend to cover more than 10,000 miles. The motorists will go to Seattle by the southern route, and make the return trip over the route selected for the New York-Seattle race. The car is fitted out with trunks, canvas, block and tackle, rifles, ammunition and other utensils that will help out when crossing the western states where traveling is difficult.

Municipal Parade Planned—City officials of Indianapolis are sending out requests for cars for the municipal parade to be held June 2. The city expects to show all of its employes and rolling stock to the public. However, several hundred employes will have to walk unless kind-hearted motor car owners will supply the necessary conveyances.

Voiturette Race Entry Small—Contrary to all expectations, entries for the French voiturette race have closed with but two makes on the register. It was thought that the excellent sport of previous contests and the valuable lessons learned would have insured the continuance of this event, but the Calthorpe and the Lion-Peugeot firms are the only supporters. It is intended, however, to hold the race in any case whether fresh entries arrive or no. The English Calthorpe cars have four-cylinder engines, 66-millimeter bore and

MR. AND MRS. GOOSMAN, OF MINNEAPOLIS, TOURING IN SPEEDWELL

a long stroke of 130 millimeters, magneto ignition, three-speed gear and Hele-Shaw plate clutch. The engine gives nearly 30 horse power on the brake.

Cross-Country Drive—H. G. Goosman, proprietor of the Motor Inn, of Minneapolis, accompanied by his wife, passed through Chicago last Saturday on his way home from Dayton, O. The trip was being made in a Speedwell baby tonneau car and already a goodly portion of the long journey had been completed.

Tries New Speedway—The initial trip around the outer course of the new speedway at Indianapolis was made by Carl G. Fisher, of the Indianapolis Motor Speedway Co. on May 20. The outer course is not yet completed, but it is expected that the final top surface will be completed about June 1. Twenty-five large bulletin boards are being placed around the course for information of spectators.

South Waxes Enthusiastic—The eight-angled endurance run over Georgia roads to end in Atlanta just before the Atlanta show is growing. The Atlanta Constitution started interest with a donation of $2,500 cash. The town of Fitzgerald, Ga., gave $1,000. Then came the Savannah News with $500. The Savannah Automobile Club added $500 and the Atlanta Journal offered $1,000 as a special road prize.

Busy in New Hampshire — Governor Henry Quimby, of New Hampshire, is not losing any time in mapping out his plans for the improvement of highways in his state. A few weeks ago he went over part of the route selected, and last week with members of his staff and the state engineers, he made a tour through the state that embraced all the roads to be coupled into state boulevards. The trip covered several days and was made in motor cars.

New Jersey Registrations—State Commissioner of Motor Vehicles J. B. R. Smith, of New Jersey, announces that the motor car returns for the year so far have been $109,799.92. The commissioner said that he received over $30,000 in the month of January, $20,000 in February and about $27,000 in March, while that for April was over $32,000. This, taken together with the amounts received from the months of October, November and December of last year, make the total for the 7 months about $150,000.

A Garage Testing Machine—An interesting type of testing machine, which is sure to be the forerunner of several throughout Great Britain, has recently been installed in the garage of Moore & Co., of Brighton, Eng. It consists of a brake horsepower dynamometer driven by the rear wheels of a car in a similar manner to the A. C. A. machine in New York. It is also provided with three dials giving readings corresponding to the compression and explosive pressures and the suction vacuum of the engine. Various adjustments of the ignition, carburation, valve-setting and timing are carried out and the car delivered to the customer giving its maximum power. Tuning up is thus made a matter of minutes rather than days, as heretofore.

New Connecticut Road—There is now in the course of construction a macadam stretch of 7 miles from the outskirts of the city of Hartford, Conn., to Berlin, which will be completed about the first of next August. This road when finished will obviate a detour by way of New Britain and will save 4 or 5 miles of travel. To construct this stretch will cost approximately $92,000. It passes in a straight line through one of the prettiest spots in the Connecticut valley.

Is a White Elephant—Because of the refusal of the railways of Nebraska to permit a motor car to use their rails, the state railway commission has a motor car that is practically a white elephant. The car was purchased by the state for $1,140 for the use of members of the commission in making trips over the various lines of the state on inspection tours. To complicate matters the company which sold the car has not collected its money and cannot under the law sue the state. Meanwhile the motor car is held in the freight depot while demurrage charges are mounting higher and higher.

Brussels' Show Date — The Belgian motor car and bicycle manufacturers have decided that the annual Brussels show will be held next January in the hall of the Palais du Cinquantenaire. It was further decided that the Belgian makers will have a joint exhibit at the Brussels world's fair which also takes place next year. The January show will again be arranged on the American plan, that is, uniform decoration. Most of the manufacturers seem to have been decidedly satisfied with this year's first trial and have found it to be less of an expense than by providing the decorations and arrangements of stands themselves.

Improving Old Trail—The old Indian trail, which later became the route of a lumbering old stage coach and known as the Maumee pike, is now to become one of the finest motor highway tracks in Ohio. This pike is the most direct route between Toledo and Cleveland and runs through Clyde and Bellevue. During the civil war it was also a part of the underground railroad. This pike is now to be improved.

Exposition Bars Motor—An order has been issued by Director General I. A. Nadeau, of the Alaska-Yukon-Pacific exposition at Seattle barring motor cars from the exposition grounds. He gave as his reasons for the order that the grounds were too crowded and that the cars interfered with the wagon transferring exhibits, etc. During the exposition motor cars will be taken care of at garages erected at two of the gates leading into the grounds.

New Texas Highway — Sam Parks, Texas' most prominent good roads advocate, and John W. Gates are interested in the building of a shell road which is to be the finest roadway in the south, and when finally completed to Galveston will connect Port Arthur, Beaumont and Houston. Work on this roadway has been completed for a short distance from Beaumont. It is made of crushed oyster shells. Governor Sanders, of Louisiana, is behind a movement to construct a road similar to this to connect New Orleans and Beaumont and then with the co-operation of the Texas road officials build the extension to San Antonio, which will make the roadway 350 miles in length.

AUTOMOBILE BLUE BOOK CAR STARTING FROM CHICAGO

The Realm of the Commercial Car

FIAT IN TAXICAB FIELD

THE Fiat Automobile Co., of New York, is now beginning to negotiate extensive contracts for public service in various cities in the United States. Among recent sales reported is an order for twelve for the Oregon Taxicab Co., of Portland, Ore., of which the second carload lot of four was shipped from New York on the 15th instant. They are fitted with suitable bodies, painted clear Havana brown, with yellow frame and running gear. The upholstery is of dark colored calf leather up to the level of the windows and above that a Havana brown broadcloth, with imported lace trimmings and curtains of silk of same quality as used in cars for private use. The Fiat works at Turin, Italy, have been busy in the manufacture of taxicab vehicles, work in this line being in evidence in nearly every civilized country in the world, including South America, Europe, Asia and North America. The London Motor Cab Co. purchased 500 of these vehicles about 18 months ago and recently placed a second order for 500 of the same make.

LARGE TAXICAB ORDER

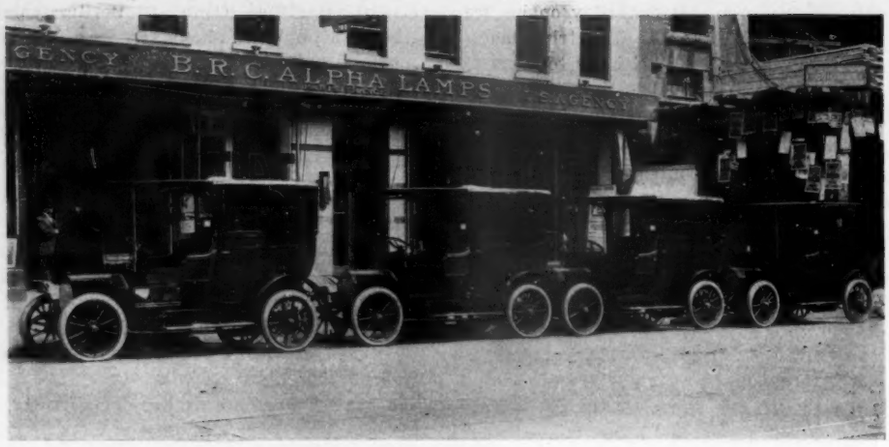
The New York Transportation Co. has placed an order for 250 de Dion-Bouton taxicabs. The cabs are to be of the 12-horsepower four-cylinder type, the multi-cylinder design being preferred to the single-cylinder cabs of this make so extensively used in Paris. This is one of the biggest taxicab orders given to one firm by an American corporation and the transportation company reports that it made a thorough canvass of the field before deciding on the de Dions for this work.

PASSING OF THE HORSE

The passing of the horse never was more significantly indicated than by the contract just executed between the H. C. Piercy Co. and the Studebaker Brothers Co. of New York, in which the former purchases from the latter an equipment of motor cars whereby the motive power of its present immense delivery contract business will be changed over from horses to machines. This one move will replace with motor cars the horse-delivery service of at least sixty-six of the prominent business firms of New York city.

The present headquarters of this company is located on West Fifteenth street, and consists of a six-story and basement building containing about 90,000 square feet of floor space. The structure is a comparatively new one and is practically fireproof. Two elevators are in service capable of handling the heaviest machines; and the stable fittings, with which this building is at present equipped, were installed in such a manner as to permit their easy removal whenever the building should be devoted to motor garage purposes. It has at present an equipment capable of caring for 400 horses and 250 delivery wagons and trucks, and with the use of machines there will be ample accommodation for about 500.

In Brooklyn there is a sub-station on Claremont avenue which will accommodate fifty machines, and it is projected to locate in the Bronx, on Long Island and in Jersey additional sub-stations for the accomplishment of delivery throughout these territories.



FLEET OF FIAT TAXICABS BEING SHIPPED TO PORTLAND, ORE.

COMMERCIAL CAR DEALS

Ralph L. Morgan, inventor of the Morgan motor truck, is looking about for larger quarters for the manufacture of his machines. Among the sites being considered is the Crompton-Thayer loom works in Whitinsville, a suburb of Worcester, Mass. A stock company is being formed.

The Observation Car Co. has been organized in Indianapolis and will conduct a taxicab line, omnibus and transfer service, all to be motor vehicles. The company also will engage in the motor car sightseeing business and will have at least a dozen cars in operation.

REPORTS ON FIRE VEHICLES

Fire Commissioner Arthur H. Regan, of Springfield, Mass., who attended the tryout of some new apparatus at Worcester recently, made some remarkable statements regarding the newly installed motor fire rigs in Springfield: "We have just completed 6 months of service with our squad A motor chemical engine," he said. "We answered seventy-eight alarms of fire with it and the total cost of operation, including the cost of gasoline, repairing and everything else was but $4.90. The machine carries 1,000 feet of hose, 35 gallons of chemical, has pneumatic tires and has never yet suffered a puncture." Springfield has just placed orders for two more pieces of motor apparatus, bringing the equipment of motor machines up to nine, the largest motor-equipped department in New England.

HARTFORD CONVERTED

Of late many cars have been purchased in Hartford, Conn., for commercial purposes only, as, for instance, in the case of the Electric Light Co., which recently bought four for the use of foremen working throughout the city. Formerly horses were employed but the motor car has proven to be far more satisfactory at less cost. The gas company has operated a car and lately purchased another. The superintendent of the city parks has just been provided with a runabout to be used in the discharge of his duties.

AUTOCAR DELIVERY WAGON

The latest type of delivery wagon marketed by the Autocar Co., Ardmore, Pa., is specially suited for department work with its canopy top, screen side and extension tailboard, complete drop curtains are provided for bad weather. One of these types is illustrated herewith in the service of Strawbridge & Clothier, Philadelphia. The wagons are specially suited for suburban delivery work.

A TAXICAB TOUR

Charles Klein, the New York playwright, author of "The Lion and the Mouse," has achieved fresh fame by making the biggest taxicab ride on record. He chartered his cab in the Strand, London, and told the cabby to drive to Edinburg. Cabby took it as a joke at first, but Klein was serious and overcame all his objections on the score of wife and children at home, etc. Arrived at Edinburg, Klein directed cabby to Glasgow, and there they took boat to Londonderry. They

then drove south through Ireland and Klein dismissed his cab at Queenstown and sailed for New York on the Cedric. The cab had been 5 days on the road and covered 1,000 miles without an involuntary stop.

HOOSIERS IN BUS BUSINESS

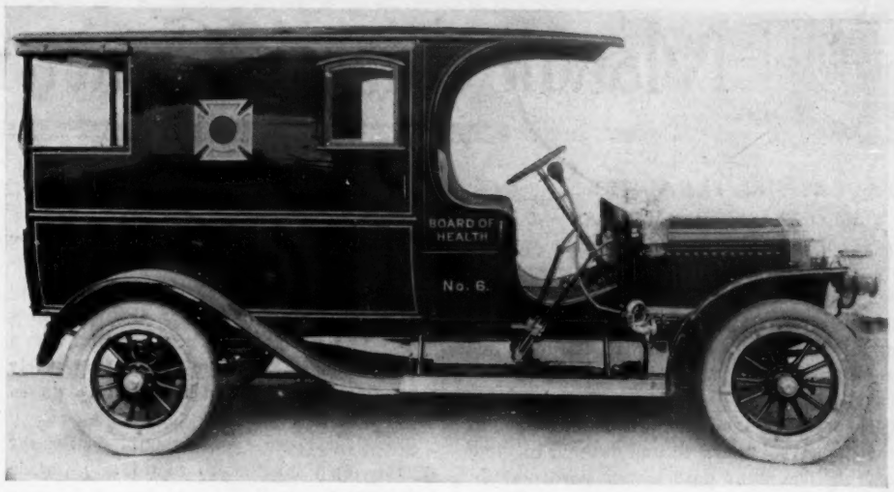
Hoosiers, realizing the great possibilities in the business, are organizing motor bus and transfer companies in large numbers. Within the last few days two such companies have been organized. At Seymour, Frank Hackendorf and Roscoe Robertson have purchased a twelve-passenger bus and are making several round trips daily between that city and Brownstown, a distance of 12 miles. At Michigan City the Auto Transfer Co. has been organized by John C. Ebert and Herman and William E. Brinckmann, who will purchase several motor trucks for transferring baggage, etc.

POSTMASTER CONVERTED

The Overland mail collecting motor cars that have been used by the Indianapolis postoffice during the last 6 months have made good; they have proven so satisfactory, in ,fact, that Robert Bryson, postmaster, has asked for a third one. The latest work arranged for the two cars is to have them collect all of the mail in the city on Sunday afternoon, thus relieving fourteen carriers from duty, much to their gratification. The cars used are leased for 1 year on trial.

PITTSBURG'S STREET CAR RIVAL

With a large crowd witnessing its initial trip the Wintersgill Motor Co. started out Monday morning, May 10, at 8 o'clock, as a live rival of the Pittsburg Railways Co. With three 30-horsepower wagonettes the new company proposes to give the residents of the south side hill tops the service which they have been trying to get for months from the Pittsburg Railways Co. These people live at the top of the Duquesne incline and formerly had transfers from the Duquesne Incline Plane Co. to the Carson street lines of the Pittsburg Railways Co. These were discontinued some time ago. The Duquesne Heights board of trade and the Mt. Washington board of trade petitioned in vain for transfers to Sheraden and Carnegie as the railways company's officials declared the demand was unreasonable. As a result of this decision the residents of the hill tops at once took other steps to secure transportation for themselves to and from the incline. They had little difficulty in getting Elmer E. Wintersgill interested in the project of a motor bus line. Mr. Wintersgill is secretary and general manager of the Mary Boat and Transportation Co., of Veteran, Florida. The motor bus line starts from Liberty avenue and Fifth street, near the center of the downtown business section and runs its cars out Liberty avenue and Water street, over the Monongahela river Point bridge, and thence by West Carson street to the foot of the Duquesne incline. The schedule is 5 minutes, or 1 minute less than the street car schedule. Each car will seat 22 passengers. The Duquesne Incline Plane Co. has signed a contract with Mr. Wintersgill providing for carrying passengers and accepting transfers. Thus the fare to and from Duquesne Heights to the heart of the city will be 5 cents, as under the old arrangement with the street car company. The seats of the cars run lengthwise and the interior of the car is handsomely finished and provided with electric lighting. Although a motor bus line for pleasure purposes has operated with more or less success in Pittsburg for 3 years, this is the first definite arrangement made with a large corporation to enter into legitimate competition with another big corporation with a view to getting street car passenger traffic.



MAXWELL AMBULANCE MADE FOR CITY OF NEWARK

AUTOCAR DESIGNED FOR LIGHT DELIVERY WORK

WILL TEACH DRIVERS

The Taxi Motor Cab Co., of Boston, which has just been absorbed by a newly-formed company in Boston rechartered under Massachusetts laws with a capital of $375,000, an increase from the $50,000 which the old company had been capitalized at under New Jersey laws, has started off by opening a free school to teach drivers of carriages how to operate motor cars. William P. Barnhart, who was general manager of the old company, has a similar position with the new one. The directors voted to increase the business and sixty-nine cars will be delivered to the company in Boston on August 1.

MAIL CONTRACT AWARDED

The postoffice department in Washington, D. C., recently opened bids for furnishing fourteen motor mail wagons for use in transporting mail matter in New York city above Forty-second street. Two propositions were received and the contract was awarded to the Motor Delivery Co., of New York, at $44,850 per year. The contract endures from July 1, 1909, to June 30, 1913. This is the largest contract of the kind the postoffice department has ever entered into, and the results of the service will be watched with great interest by postal officials.

MAXWELL AMBULANCE

The Maxwell-Briscoe Motor Co. has just built an ambulance for the city of Newark, N. J. The car has a wheelbase of 126 inches; the body is 7 feet long, 3 feet wide, and is provided with stretcher, medicine chest, speaking tubes and side seats which fold up when not in use. The inside of the vehicle is padded and electric lights are provided for the convenience of the surgeon in charge.

Manufacturers' Communications

FAVORS TIRE PENALTIES

AKRON, O.—Editor Motor Age—I favor penalization for tire trouble in any and every endurance run, reliability contest or long-distance race, and I believe the American Automobile Association will miss the opportunity of the year if it does not penalize for tire trouble in the Glidden tour. Just why the question of tire service is usually left out of all calculation in these events is hard to understand, in view of the important part which tires play in motor car efficiency. The greatest need of the industry today is better tire service and no one knows this quite as well as the motorist who has had poor tire equipment. Tire penalties cannot but aid in demonstrating the comparative service-life of tires; they may also be expected to show whether or not the motor car manufacturer is using large enough tire equipment for the weight and speed of his car. The present is an especially opportune time to introduce tire penalties in view of the charges recently made that tires for motor car events are selected not because of their service-value but because they are presented gratis for advertising purposes. It is to be hoped that the contest committee will take the lead in tire penalization and set a precedent for the managers of other events. Car owners in general will be certain to profit eventually in the shape of more efficient tire service if this is done in the future.

We do not agree in the contention that tire trouble should be made an exception, and the time thus lost be made up to the car. Doubtless the same car, if it had any other kind of trouble, would scorch just as hard and risk accidents just as serious in its efforts to make up for time lost and to avoid penalization, as it would if it had tire trouble and might be penalized for it. It has been my observation that cars run as fast as they can anyway until they are within a safe distance of the checking station.

If tires were penalized there would be more attention paid by car manufacturers and dealers to having the right quality and large enough size for the cars they sell. The drivers in these events would also use more care in protecting their tires, just as they are supposed to do in every day use.

Tires for these events should be bought in the open market to avoid any unfair advantage gained by an tiremaker over another. While I feel that a thorough tire test would be a good thing for motorists in general, I cannot offer at this time any more definite means of applying the test.—H. S. Firestone.

LUBRICANT INTERESTS MEET

New York—Editor Motor Age—The recent meeting of the committee on lubricants of the Motor Accessories Manufacturers was principally for the purpose of effecting an organization, which was done by the election of George Baum, of Adam Cook's Sons, as chairman. It was understood that the chairmen of the various committees would meet in the near future, and that this general committee would receive suggestions from the various sub-committees, and a general discussion, it is hoped, would result in a plan being evolved for the regulation of the interests of the various branches of the accessory industry. It was suggested that frequent meetings would result in members of the trade becoming better acquainted, and those present were requested to endeavor to secure the co-operation of such firms that were members of the M. A. M. who had not yet signified their intention of becoming members of the committee.—W. B. Shiddan.

MAKING CHAUFFEURS

Buffalo, N. Y.—Editor Motor Age—Although the school of instruction at the plant of the Pierce-Arrow Motor Car Co. will be continued for some time a sufficient number of persons have taken the course since the beginning of the school year to give a very good idea of where the chauffeurs come from. The matter of keeping an accurate record of each man who entered the school was a comparatively easy one, since each man is given a card of admission to the school on the presentation of the proper credentials from a dealer or owner, and on the back of this is made a notation of his previous experience, along both driving and mechanical lines, and his former occupations. The course covers 2 weeks and at the end of that time a report on the capabilities of each man is made by the head of the school. The reports made out so far show that 47.3 per cent of the men who have taken the course this year have had driving experience, the other 52.7 per cent being inexperienced. Of those who have had experience a number had learned to drive other cars, while a comparatively large proportion had had previous experience with Pierce-Arrows and attended the school to freshen up their mechanical knowledge. A large proportion of those who had had no previous driving experience was made up of men whose former occupation would prove of assistance to them, 13.8 per cent of all the students having been coachmen who remained with their former employers as drivers when they shifted from the horse and carriage to the motor car, and approximately 14 per cent having been repair men and mechanics with experience in motor car work. It has been the experience at the Pierce-Arrow factory and among Pierce-Arrow dealers that a number of motor car buyers hesitate about continuing to employ well liked and satisfactory coachmen as chauffeurs.—Pierce-Arrow Motor Car Co.

STARTING AN ENGINE

Kenosha, Wis.—Editor Motor Age—There is more than one way of grasping the crank of a motor car to start the motor. As ordinarily practiced, the hand in grasping the handle is so placed that the thumb and fingers encircle it. Such a method is comparatively safe if the operator is pulling upward on the crank, but decidedly unsafe should he be pressing downward and a backfire occur. The safer method, and one which will allow the hand to leave the handle without injury whether when pulled up or pressed down, is to place the thumb on the same side of the handle that the fingers are on and not to entirely encircle the handle. This allows the handle to slip out of the grasp when pressed down and permits the fingers to release the handle when being pulled up in case of a back fire.—Thomas B. Jeffery.

USUAL WAY OF CRANKING

PROPER WAY OF CRANKING

Motor Car Shop Kinks

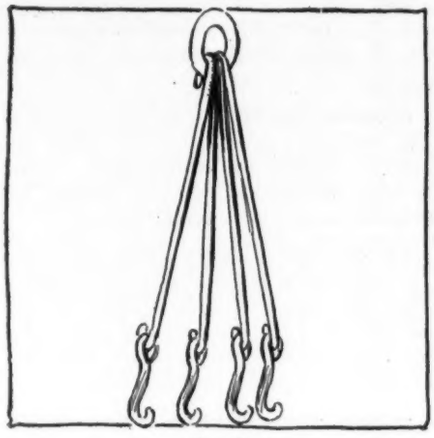


FIG. 3

Grinding Motor Valves

WHEN a loss of compression, accompanied by a consequent loss of power, makes it necesasry to reseat, or grind in, the valves of a motor, the sooner the job is performed the better. A valve may leak from more than one cause; if adjustable, the adjusting cap or nut may have become loose and moved down, holding the valve off the seat; the head of the valve or the stem may be warped from the heat; or, as is most commonly the case, the valve seats are pitted or covered with a carbon deposit. If the trouble is caused by the adjustment, the valve should be removed, cleaned up, examined, and if in good shape replaced and adjusted so that there will be a clearance of about 1/32-inch between the end of the valve stem and the push rod. A valve whose head is warped or whose stem is bent should be replaced with a new valve. A bent stem may be satisfactorily straightened and a warped head trued up in a lathe; but that will not remove the something, in the stock from which the valve is made, which is the primary cause of its warping.

For the valve that is pitted, grinding is the proper treatment. After having scraped the carbon from the valve chamber and seats, and before grinding, it is well to block up the entrance to the cylinder with cloth to catch any particles of emery that would enter. To grind in a valve which is badly pitted it is well to begin with rather a coarse grade of emery. Apply a coat of cylinder oil to the face or seat of the valve, distributing it with the tip of the finger, then dip the finger in the emery and apply that which adheres to it to the seat on the valve. Be careful to keep the stem clean so the guide will not be enlarged. Now, as shown in Fig. 1, with one hand on the screw driver or grinding tool, and the other near the valve stem, assume as comfortable a position as possible and grind. This is done by turning the valve about a half revolution back and forth on its seat in the cylinder, by means of the tool in the one hand, and occasionally lifting the valve from its seat and shifting it around with the other. The valve should be lifted about ⅛ to ¼-inch every five or six reversals, to keep the oil and emery well distributed.

The pressure on the tool should be slight. Every few minutes the valve should be removed, the seats cleaned off and examined, and a new solution of emery and oil applied. When the pits are almost removed continue the operation with flour of emery instead of the coarser grade; remove the valve oftener, applying more oil and less emery each time, till a good seat is obtained all around; then finish up by polishing the seats with oil. Kerosene is most effectively used in finishing the seats of a valve, and the higher the polish obtained the less chance for a carbon deposit.

An Iron Sling

In Fig. 3 is shown an iron sling which is in general use in a local repair shop. It consists of nine pieces, all of which may be quickly detached from each other, and as many parts used together as the case may require. For instance, in lifting a motor of three-point suspension, two of the long hooks would be attached to the lateral points, and one, in conection with a short one, would be attached to the central point; in lifting an axle probably two long hooks with two short ones in connection would be used; to lift a motor or transmission having four legs, just the four long hooks, or the entire outfit, would be required.

Look for Little Things

A few days ago a case of ignition trouble was brought before one who has had considerable experience in locating and eliminating the causes of motor car troubles. The complaint was that the engine missed on one cylinder when running on the high gear. The owner also stated that the repairman at the agency from which he had bought the car had examined the spark plugs and pronounced them all right, and that the trouble lay in the magneto. A ride was then taken and as the owner had stated the engine ran very nicely on

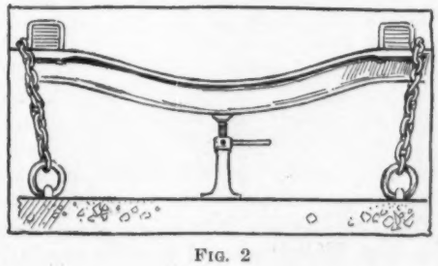


FIG. 2

FIG. 1

first and second speeds, but after throwing into high gear a very audible miss was noticed. The car was stopped, the spark plug connections examined and a short circuit was made with a screw driver between the top of each plug and the cylinder, while the engine was running, allowing the spark to jump from the head of the plug to the screw driver. By this test it was found that there was no spark at cylinder No. 2, and having been advised that the plugs had been examined and were in good shape, the engine was stopped and the magneto examined. The contact breaking device and commutator was removed and cleaned up, all brushes and contacts examined, and when satisfied that everything was in working order, the motor was again started. The plugs were again short circuited with a screw driver and still there was no spark at number 2 cylinder. This was rather perplexing for a moment. The wire leading to the plug was then disconnected from the top of plug and held near the grounded portion, and a good fat spark jumped regularly. The fault really lay in the plug, which when replaced with a good one, eliminated the trouble.

Straightening Bent Axles

In Fig. 2 is illustrated a suggestion for straightening an axle which is slightly buckled without removing it from the car. The rings are substantially fastened to the floor in such a manner that when not in use they will lay flat on the surface, or better still, in a recess which would bring them flush with the surface. Two stout chains are slung over either end of the axle and made fast to the rings. Then portion the axle may be bent back into by applying the screw-jack under the bent place. The work should be done gradually.

Among the Makers and Dealers

Has Chicago Branch—The Starter Mfg. Co., maker of the Magnetic self-starter, has opened a branch in Chicago at 1502 Michigan avenue.

Autolux Company Formed—The Autolux Mfg. Co., of Milwaukee, Wis., has filed articles of incorporation. The capital stock is $10,000 and the incorporators are G. R. Hoffman, A. U. Stetten and Thomas P. Carter, all of Milwaukee.

Electric Performance—Claim is made that J. P. Gleason, of Seattle, Wash., recently drove a Baker electric roadster 70 miles over the steep hills of Seattle on high speed, carrying four passengers, without recharging the batteries, averaging more than 25 miles an hour.

Will Make Business Rigs—A. H. Hopkins and Walter Knight, of Ludington, Mich., are about to launch into the manufacture of commercial motor cars. The first model will be a 16-horsepower runabout for light delivery. The name of the $50,000 concern which will be formed will be the Utility Motor Car Co.

Popes Out of Receiverships—Both the eastern and western interests of the Popes were finally released from receiverships when Judge R. W. Taylor recently issued a final order confirming the report of the receivers of the Toledo plant and ordering their discharge. This is the final legal step in the liquidation of the affairs of the Pope Motor Car Co.

Sparta Wants a Plant—The Citizens' Club of Sparta, Wis., has received a proposition from Milwaukee capitalists to locate a motor car factory there. The citizens are required to subscribe $30,000 to make a total capitalization of $60,000 for the company, the other half to be furnished by the Milwaukee men. The proposed factory would produce trucks, delivery wagons and runabouts, propelled by air-cooled gasoline engines. It would employ 100 to 150 men at once.

Wisconsin Events—Lance Jones and Leslie Ross, of Mineral Point, Wis., have formed a partnership and leased the McCoad warehouse and will convert it into a garage. It will have a capacity of twenty machines. The Guarantee Auto Co., of Burlington, is a new district agent for the Buick in southern Wisconsin. The Kent Motor Car Co., of Kenosha, is building a new garage, 50 by 100 feet, on Church street, near Wisconsin street. Case & Johnson, livery men at Marshfield, Wis., have added a high-wheeler to their equipment. The Davis Mfg. Co., motor builder, Milwaukee, has increased its capital stock to $100,000. The company has recently built a new plant and the additional issue is to provide for extensions. The Owen Thomas Motor Car Co., of Janesville, Wis., has increased its capital stock from $13,500 to $50,000, preparatory to becoming an active factor in the manufacturing field with the O.-T. Six.

Bauret in Charge—E. J. Bauret, of Passaic, N. J., has taken charge of the sales of the Frontenac pleasure cars and gasoline trucks in his territory for the Abendroth & Root Mfg. Co.

Olds Branch Moves—The Oldsmobile Baltimore branch has moved its office from the fourth floor of the American building to 1016 Morton street. There, in addition to the office, the branch has established a garage. E. L. Leinbach is manager of the branch.

Increasing Pierce-Arrow Plant—A large addition will be built to the machinery hall at the plant of the Pierce-Arrow Motor Car Co., Buffalo, giving an additional space of 10,500 square feet. Another addition will be built to the body building, giving an additional space of 24,000 square feet.

Stubbs Out; Barker In—P. D. Stubbs, secretary and sales manager of the Overland Automobile Co., Indianapolis, has resigned and on June 1 will join the New York sales force of the White company. Mr. Stubbs will be succeeded by Fred Baker, who has been connected with the Dayton Motor Car Co., Dayton, O., for some years. On May 20 a farewell banquet in honor of Mr. Stubbs was given at the Indianapolis Canoe Club by fifteen of the original Overland force. Will H. Brown, vice-president of the company, acted as toastmaster and on behalf of those present presented Mr. Stubbs with a gold band ring as a reminder of Indianapolis days.

Fuller Starts Building—Ground was broken Saturday at the corner of Commonwealth avenue and Malvern street, Boston, for the new building to be erected for Alvan T. Fuller, Boston, agent for Packard and Cadillac cars. When completed it will be the largest structure of its kind in the country, and will represent an outlay of more than $200,000. The building will be of reinforced concrete, 70 by 340 feet and four stories high with a basement. It will be finished about October 1. The front part will contain a showroom, 70 by 60 feet on the ground plan and 28 feet high. Here the Packard and Cadillac models will be exhibited. The remainder of the ground floor will be used for minor repairs and adjustments, for the convenience of owners. The second floor is to be the stock room. On the third floor will be the top and upholstering departments as well as the painter's workshop. The entire fourth floor will be given over to a repair department. The basement will contain the garage, oil and gasoline supplies, washing department, dining-room and lockers. The retail sales department will still remain where it is at present in Park square.

Speedwell Capital Increases—The Speedwell company, of Dayton, O., which recently increased its capital stock, raised it from $50,000 to $250,000 instead of $100,000 as stated in Motor Age.

Chicago Next Meeting Place—The summer meeting of the Society of Automobile Engineers will be held in Chicago the latter part of July. A program is now being arranged and it is expected a number of interesting papers will be read.

Another Rubay Dividend—Peter Zucker, trustee of the estate of Leon Rubay of New York city, bankrupt, announces that he has declared a second and final dividend out of the estate of 15 per cent upon the claims proved and allowed. This will be paid June 3.

Sterling Agents—The A. H. Kagy Motor Car Co., 708 East Fifteenth street, Kansas City, Mo., is the sole distributer of the Sterling in that territory. The Strong Motor Car Co., 917 West Grand avenue, DesMoines, Ia., is handling the Sterling. J. F. Egensperger, 837 Scofield bldg., of Cleveland, O., represents the car in that vicinity, while William H. Gerhard, of Austin, Tex., is the southern representative.

Change in 'Frisco—Another important agency has changed hands in San Francisco. Max Rosenfeld, who for several years has handled the Peerless car in northern California, no longer represents the Peerless company. The agency has been given to H. O. Harrison of Los Angeles, who has been handling the car in the southern metropolis. Harrison has located his Peerless agency in temporary quarters on Golden Gate avenue, pending the completion of a fine permanent brick building on Van Ness avenue. Max Rosenfeld, who retires as Peerless agent, retains his Apperson agency and will push that car.

Spare Wheel Patents Upheld—The circuit court of the United States for the district of Indiana last Saturday entered a decree in the case of the Stepney Spare Motor Wheel, Limited, and the Spare Motor Wheel of America, Limited, vs. the Black Mfg. Co., sustaining the validity of the letters patent on the Stepney spare wheel. The court issued a writ of injunction perpetually enjoining the Black Mfg. Co. "from making, selling or using, or causing to be made, sold or used, any vehicle tires in infringement of the said Doolittle letters patent No. 879,610, or of any of the claims thereof." It is claimed by the Stepney people that this decrease fully establishes

the right of the Spare Motor Wheel of America to exclusively manufacture and sell in the United States spare or emergency wheels.

Geyler Has Autocar—The Louis Geyler Co., of Chicago, has taken the agency for the Autocar in both pleasure and commercial lines. Mr. Geyler handled the line 2 years ago when with another firm.

Texas Taxicab Concern—The Capital City Auto Co., of Austin, Tex., has organized to operate taxicabs and maintain a garage, Pierre Bremond being president, E. H. Perry vice-president and R. M. Thomson, Jr., secretary and treasurer.

Kilgore Growing—The Kilgore Mfg. Co., maker of the Kilgore shock absorbers, has just purchased a large lot of land adjoining its present factory at Boston, upon which it will erect an additional building. This will enable the factory force to handle ten cars at once while equipping them with the shock-absorbing device.

Testing Track For Mitchell—The Mitchell Motor Car Co., of Racine, Wis., having recently acquired the J. I. Case race track near its factory, is constructing a large incline with various grades on the course and hereafter will do its testing there. The track was built years ago by Jerome I. Case, founder of the big threshing machine works and a race horse owner. The Mitchell testers have been using country roads for trying out machines and this occasioned complaints from ruralites.

Mitchell Plans—William Mitchell Lewis general manager of the Mitchell Motor Car Co., of Racine, announces that his company will manufacture 6,000 cars during the season of 1910 with an aggregate value of $8,100,000. In order to turn out this number of cars, the Mitchell company is now engaged in the erection of three new buildings, one of which is 436 feet by 250, and the others about half these dimensions, in addition to a two-story office building 110 by 120. The improvements will give an additional floor space of 235,000 square feet and the buildings and equipment will necessitate an expenditure of half a million dollars.

Will Use the Power—At the Stevens-Duryea plant at Chicopee, Mass., the makers have perfected a plan whereby the motors while being tested out now furnish power for the factory. In former years while the motors have been on the blocks they churned up a huge tank of water and so the power was all wasted. Now when the motors are straining at their blocks the energy is conserved by dynamos and used to drive the machinery in the factory. Each engine is placed on a separate frame and attached to a direct-current motor. When first put on the stand it is run by the electric motor, but after being limbered up the engine is required to drive the motor for a number of hours, developing about 38 horsepower. It is then examined for wear and replaced, and for 10 hours must drive the electric motor, producing a minimum of 38 horsepower all the time. A large switchboard above the testing blocks records the power of each motor.

Diamond Did Not Suffer—Denial is made by the Diamond Rubber Co. that it suffered a loss in the recent fire at Akron, O., which destroyed the seven-story Hower block. At one time it had $150,000 worth of fabric in the building, which, however, was removed a month before the fire.

Milwaukee Garage—The Wisconsin Automobile Co., 241 Wisconsin street, Milwaukee, claims to have one of the largest garages in the Cream City, with a floor space 50 by 120 feet without a post. The front of the building is unique in that the company's sign is made of ceramic mosaic tile. The company handles the Stearns.

Next Year's Mitchell Ready—J. W. Bate, the designer of all the Mitchell cars since their inception, has just completed the 1910 model and will, within the next few weeks, ship it to California, where, accompanied by General Manager William Mitchell Lewis, he will subject it to the tests over the mountains and deserts of the Pacific coast. This course was decided on by the company because of the impossibility of securing severe roadability tests over the more or less flat highways of Wisconsin and Illinois.

New Fisk Tire Home—The new Philadelphia branch of the Fisk Rubber Co. at 258 North Broad street, recently completed, is a large three-story fireproof brick structure. On the main floor are the salesroom and offices, fitted up with quartered oak in special Roycroft finish in green and mahogany. The basement has accommodations for holding 1,500 to 2,000 casings and the same quantity of tubes, all kept at uniform temperature by special heating apparatus. On the second story is a private conference room, sample room and storage space, while the top floor will be devoted exclusively to the repair department and is fitted with every appliance for repairing tires. The vulcanizers, boilers and heating rooms are separated from the rest of the department by fireproof walls.

Explosion Wrecks Factory—The small factory of the Carbon Gas Refilling Co., of Milwaukee, Wis., was totally wrecked by an explosion. John Heiber, proprietor, who was working on the tank that exploded, was unhurt.

Moving to Marion—Due to the efforts of the Marion chamber of commerce, of Marion, Ind., the Western Motor Co., now at Logansport will establish a factory in that city. The chamber of commerce has agreed to furnish a $15,000 site of 12 acres and the new plant will be ready for operation about September 1.

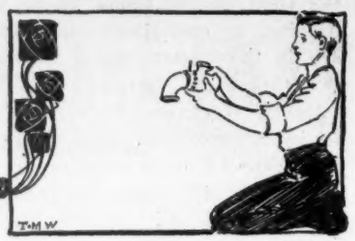
Handling Permanit—The Adolf Karl Co., of Newark, N. J., importer and dealer in Permanit, has established an agency in New York under the name Permanit Co. of New York, W. L. Roder, proprietor, and M. J. Stilger, manager, in the Thoroughfare building, Fifty-seventh street and Broadway.

Rider-Lewis Agencies—Recent appointment of agents by the Rider-Lewis Motor Car Co., of Muncie, Ind., include the following: Napier Auto and Supply Co., Macon, Ga.; Segerstrom Automobile Co., Minneapolis, Minn.; White Sales and Garage Co., Dallas, Tex.; J. A. Wicke, Marengo, Ia.

Studebaker's Chicago Plan—The Studebaker company is erecting at the corner of Michigan avenue and Twenty-first street, Chicago, a building of solid concrete, seven stories in height, with a frontage on Michigan avenue of 75 feet and 175 feet on Twenty-first street. It is expected that the building will be ready for occupancy about January 1, 1910, and as soon as completed the motor car department of the Studebaker company, now located with the carriage repository on Wabash avenue, will take possession of the entire building.

WISCONSIN AUTOMOBILE CO.'S GARAGE IN MILWAUKEE, WIS.

How to Secure a Patent in Switzerland



THE patent law of Switzerland provides that a patent is valid only when granted to the inventor or to his assignee. Persons not living in Switzerland must appoint a representative in that country.

Patentable inventions are new inventions which may be applied in the arts and are capable of being represented by models. Inventions are not considered new which at the time of application for a patent are sufficiently well known in Switzerland to enable a person skilled in the art to execute them. Inventions excluded from protection are those which cannot be represented by models. Methods or processes cannot be patented under the Swiss law.

File Papers at Berne

All applications for patents must be addressed to the federal bureau of intellectual property, at Berne. There must be joined to each application a description of the invention, the drawings necessary for the understanding of the description; the proof that a model of the object invented exists or that the invention itself exists; the sum of $7.72, representing the fee for filing and the first annuity; a power of attorney if the application is filed by a representative of the inventor; a declaration having the signature of the inventor, certified to by a competent authority or by a notary, establishing the right of the holders of the interest, if the patent is not applied for in the name of the inventor; a memorandum of the documents and articles filed.

Must Use a Form

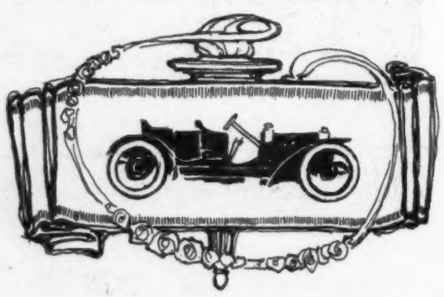
The application must be written upon a form furnished by the Swiss administration. The description of the invention and the drawings must be filed in duplicate. The application and the documents which are joined thereto must be written in one of the three languages, French, German or Italian. All parts of the application must be in the same language. The title under which the application is presented must designate in a precise manner the subject of the invention.

The applicant for a patent who desires to enjoy the benefit of a time allowance of priority established by international treaty may file the documents which establish the rights which inure to him from an anterior filing. He may also confine himself to mentioning upon the application form the facts serving as the basis for these rights. The description of the invention must make known clearly its import and be so written that one skilled in the art may therefrom carry out the invention. It must terminate with a résumé of the features of the invention which are of special importance. By this is meant the claims of the invention.

The drawings, in duplicate, one copy on bristol board and the other on tracing cloth, must be executed under the following form: Thirty-three centimeters high by 21 wide, 33 centimeters high by 42 wide, or 33 centimeters high by 63 wide. As far as possible the small or medium form should be used. Each sheet of the drawing must be surrounded with a single line drawn 2 centimeters from the edge. It must have at the left, at the top, the name of the applicant and the date of the application, at the right, at the top, the number of sheets filed and the number of each sheet, and at the right, at the bottom, the signature of the person filing the documents of the application. One of the duplicates, intended for photographic reproduction, must be executed upon strong, smooth, and white drawing paper. It must be neither colored nor painted with a wash. The lines must be in good black ink. The hatchings must be separated. The second duplicate must be a reproduction of the first upon tracing cloth and it may be colored. The drawings must not be folded or rolled. They must be sent perfectly flat and not creased. Close attention should be paid to these details, as the law is very strict about compliance with the rules laid down.

Two Classes of Patents

There are two classes of patents in Switzerland. The first is known as patents of invention, the duration of which is 15 years, starting from the date of the application. The second class embraces patents of addition, which have the same duration as the principal patent to which they refer. A complete patent of invention is granted only upon proof of the existence of the model. In default of this proof a provisional patent is granted, which can be changed into a complete patent within a limit of 3 years, to date from the day of the application, by furnishing proof of the point in question.



The filing fee is $3.86; the first annuity, $3.86; second annuity, $5.79, etc., increasing $1.93 each year. Patents of addition are subject only to the payment of the fee for filing.

Regarding Models

Regarding models: The proof of the existence of the model is shown—models of which are forwarded, the filing being obligatory. These consist of inventions which are essentially composed of substances difficult of identification, inventions which are characterized by properties which ordinary means of investigation do not admit of establishing. Or there may be a permanent deposit of photographs representing the invention in a precise and complete manner or a temporary deposit of models or satisfactory photographs, not to be permanently filed, but only for the purpose of comparison. The fee for comparison in the federal bureau is $1.93.

Patents are granted upon proof that the documents and fees prescribed have been filed in the manner indicated by law. In case of the refusal of a patent the interested party may have recourse to the federal department of justice and police within 4 weeks. In common with the laws of many other European countries, the Swiss law prescribes that patented inventions must be worked in Switzerland within 3 years from the date of the patent.

New French Patent Bill

Washington, D. C., May 23—Officials of the patent office have been advised that the French government, following the example of England and other countries, has introduced a bill to amend the patent law of that country in order to insure the adequate working of foreign patents in France. The principal provision of the bill provides that patent rights shall be held to lapse in the event of failure on the part of the holder either to exercise his right in France or in the French colonies for a period of 3 years after applying for his certificate, or to resume exercise of after a similar interval; or, secondly, in the event of only partial exercise of the patent in French territory. In the second event the patent courts will be invested with discretionary power to call upon the holder of the patent to show cause why he should not exercise his rights in French territory "in an adequate degree."

Brief Business Announcements

New York—The Knox Automobile Co. has leased the store at 1966-1968 Broadway.

Detroit, Mich.—W. G. Jennings has been appointed manager of the local branch of the Diamond Rubber Co., which is located at 265 Jefferson avenue.

San Francisco, Cal.—Burkett & Crippens, who have been appointed local representatives of the Inter-State, have opened their new headquarters at 550 Golden Gate avenue.

Minneapolis, Minn.—The Countryman Automobile Co. has decided to retire after doing business for 3 months, and has sold out to the Heaney Automobile Co., of Aberdeen, S. D.

Houston, Tex.—The Palace Automobile Co. has been organized here. It will act as agent for the Royal. The new concern is to make its headquarters at Louisiana and Rusk streets.

Trenton, N. J.—Phineas Jones & Co., of Newark, have been incorporated with a capital stock of $100,000, to manufacture wheels, hubs and tires. The incorporators are H. P. Jones and P. Jones.

Pittsburg, Pa.—The Traders' Automobile Co. has been organized by D. C. Dugas and others of Pittsburg to buy and sell second-hand cars. It will be located in a large garage on Beatty street, East End.

Joliet, Ill.—The Economy Motor Buggy Co. has been incorporated with a capital stock of $60,000, to manufacture and deal in motor vehicles. The incorporators are J. F. Beuret, H. L. Thompson and J. C. Flowers.

Harrison, N. Y.—The Newcomb Engine Co. has been incorporated with a capital stock of $200,000, to manufacture motors, engines, motor cars, boats and launches, The incorporators are W. B. Thompson and O. A. Hack.

New York—The Tobin Whichway Signal Co. has been incorporated with a capital stock of $300,000, to manufacture motor supplies, lamps and signal devices. The incorporators are W. M. Wherry, C. A. Brooks and F. Murphy.

New York—The Cleveland, Beck and Lyman Motor Corporation has been incorporated with a capital stock of $8,600, to manufacture motors, motor boats and vehicles. The incorporators are C. Cleveland, A. L. Beck and H. B. Lyman.

Long Island City, L. I.—Plans have been filed for the erection of an eight-story garage to be erected on Thomson avenue, between Hill and Vandam streets, by the Packard Motor Co. of Manhattan. The plans are for a building of reinforced concrete, 150 by 92 feet, and which is to have a capacity of between 800 and 900 machines.

Cleveland, O.—The Auto Sales Co., which is agent for the Hupmobile has also taken over the Unito motor buggy.

Cleveland, O.—The Auto Truck Sales Co., 225-227 Williamson building, has taken the distributing agency in seventeen counties for the Frayer-Miller.

Marshall, Mich.—The Guy L. Sintz Motor Engine Co., which is at present located at Grand Rapids, is planning to erect a new plant in this city at a cost of $3,000.

Dover, Del.—The Rae Electric Vehicle Co., of New York city, has been incorporated here with a capital stock of $150,000, to manufacture and deal in motor vehicles of all kinds.

Huff Station, Pa.—The Power Wagon Co. is manufacturing a motor truck. The concern employs about forty men. The officers are: President, James A. McAteer; vice-president, R. C. McAteer; secretary and treasurer, M. M. Boyd, of Pittsburg. G. S. Garbin, of Greensburg, Pa., will be superintendent of the plant.

Mexico City, Mex.—Elidio Campero has been appointed superintendent of the repair department of the Anglo-Americano garage.

Houston, Tex.—The White Garage and Sales Co., of Dallas, has been incorporated with a capital stock of $6,000, by R. V. and L. F. Rogers and W. R. Allen.

Jackson, Miss.—The Aberdeen Automobile Co., of Aberdeen, Monroe county, has been incorporated with a capital stock of $10,000, by J. L. Shell and A. A. Frierson.

New York—The Gotham Taxicab Co. has been incorporated with a capital stock of $200,000, to operate a garage. The incorporators are J. V. Levy and S. L. Root.

Boston, Mass.—The Eastern Pneumatic Tire Co. has been incorporated with a capital stock of $25,000, to deal in pneumatic tires. The incorporators are A. R. Ellis, H. N. Atwood and J. McLay.

New York—The Couple Gear Co. has been incorporated with a capital stock of $50,000, to manufacture motor vehicles, cars and carriages. The incorporators are W. H. Kennard, F. B. King and H. Greene.

Atlantic City, N. J.—The Atlantic Automobile Co. has been incorporated with a capital stock of $25,000, to engage in a general garage business. C. E. Schroeder, G. W. Meredith and F. A. Broadhead are the incorporators.

Rochester, N. Y.—The Turner-Hose Automobile and Launch Co., of Rochester, has been incorporated with a capital stock of $5,000, to manufacture motor cars, launches, etc. The incorporators are F. Turner, R. H. Hose, Elizabeth Turner and Louise Hose.

Philadelphia, Pa.—The Motor Co., the latest addition to Philadelphia's row, hung out its sign last week over handsomely fitted up quarters at 132-134 North Broad street. This concern will handle the Premier in the Quaker City and adjacent territory.

Albany, N. Y.—The Mutual Taxicab Co., of New York, has been incorporated with a capital stock of $5,000, to conduct a boarding and livery stable, as well as freight and baggage transfer. The incorporators are C. H. Minder, P. W. Hannihan and G. H. Mallory.

Nashville, Tenn.—The American Rubber Works Co. has been incorporated with a capital stock of $25,000, to manufacture shields for motor cars, and also make a specialty of tire repair work. Drs. G. R. White, J. R. Plaskett and W. T. Anderson are among the incorporators.

RECENT INCORPORATIONS

New York—Oesen Automobile Co., capital stock $10,000, to manufacture motor cars, parts and accessories; incorporators, H. M. Kilborn, W. E. Matterson.

New York—Home garage, capital $2,000, to deal in motor cars and conduct a garage; incorporators, A. Roberts, M. V. Connelly, J. T. Farrelly.

New Rochelle, N. Y.—Belmont Automobile Co., capital stock $100,000, to manufacture, rent and sell motor cars; incorporators, H. A. Meiser, H. A. Lucker and Douglas Hamilton.

Lowell, Mass.—Lowell Taxicab Co., capital stock $10,000, to do a general motor business; incorporators, F. E. Haines, F. B. Emerson.

Cleveland, O.—No-Shamming Co., capital stock $10,000, to deal in motor car supplies and specialties; incorporators, L. Daniel and others.

Buffalo, N. Y.—Auto-Tri Mfg. Co., capital stock $200,000, to manufacture, repair, rent and deal in motor cars, etc.; incorporators, G. R. Bidwell, W. S. Bull and W. M. Bowen.

Brooklyn, N. Y.—Brooklyn Motor Car Co., capital stock $1,000, to do repairing and storage business; incorporators, J. W. Tyler, J. B. Williams.

New York—Saxon Lamp Co., capital stock $5,000, to deal in and repair motor cars and motors; incorporators, A. Semons, H. W. Janson and A. W. Rosen.

New York—Hudson Auto Improvement Co., capital stock $500, to manufacture motor supplies and appliances; incorporators, L. Hess, H. F. Langhaus and A. Seipel.

New York—Crescent Tire Co., capital stock $5,000, to deal in motor car tires; incorporators, A. Mendel, Max Zeisler and M. Schwabsky.

Newark, N. J.—Fred J. Titus Co., capital stock $100,000, to manufacture motor cars; incorporators, J. N. and G. D. Hance and Fred J. Titus.

Rutherford, N. J.—Rutherford Transit Co., capital stock $20,000, to operate a motor stage line; incorporators, William Black, C. R. Soley and J. M. Bell.

New York—Times Auto Supply Co., capital stock $20,000, to manufacture motor cars, motors, motor boats, etc.; incorporators, C. O. Jones, B. H. Ellis and H. T. Johnson.

Development Briefs

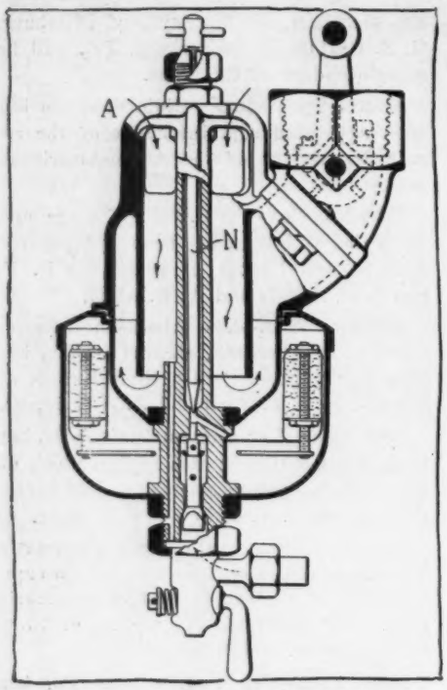


FIG. 1—WATERHOUSE CARBURETER

Garage Jack-Turntable

THE Garage Equipment Co., Milwaukee, Wis., manufactures a jack-turntable to be used on garage floors for turning cars when there is not room to turn them on their own power, and a stationary turntable is not desirable. In brief, it is a four-castor contrivance, Fig. 2, with a fork, F, at each end, each of which slips under a rear wheel of the car, after which the wheels may be raised from the ground by turning the handle H, which connects by universal joint with a central shaft. To elevate the wheels two operations are necessary: First, after the jack-turntable is run under the axle, the forks F must be pushed under the wheels; this is accomplished by the inner rack ends R, which engage with a pinion on the loose shaft. In the shaft is a short cross-pin which enters notches in the pinion when the shaft is pulled endwise, the pin serving, as a clutch to hold the gear to the shaft. Once the forks are under the wheels, the next problem is to raise them from the ground. This is accomplished by a pair of chains, C, which wind in opposite directions over the spool P. This spool is rotated through the same pin in the shaft, which is used to rotate the gear, the shaft being slid endwise in the opposite direction to engage the spool. A chain-controlled pawl holds the wheels off the ground. By means of the universal joint between the shaft and the handle H, it is possible to operate the turntable in very congested places. This concern also manufactures electric sockets which can be fitted in oil lamps of motor cars, where the motorists prefer electric light to oil lamps. All that is necessary to fit the electric sockets is to remove the burner, after which the electric socket may be inserted. Still another device of this company is the Economy vise and vulcanizer, consisting of a vise, a smooth plate on which to lay an inner tube while preparing a patch, a hot plate with a flat surface for inner tubes, and a concave surface for vulcanizing outer casings, together with a yoke for clamping the plate to the tire casing. The heat for the vulcanizer is obtained by burning gas from the gas tank, or acetylene generator. A thermometer is incorporated in the vulcanizing plate. The device complete weighs less than 9 pounds as it is put on the market.

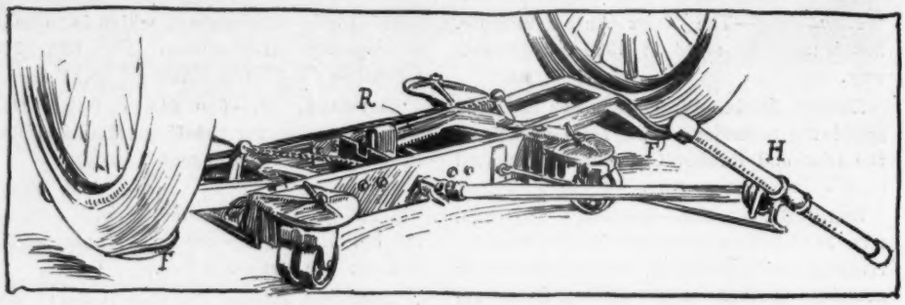


FIG. 2—GARAGE EQUIPMENT CO.'S TURNTABLE

Waterhouse Carbureter

The Monitor Mfg. Co., Boston, Mass., is manufacturing the Waterhouse carbureter, Fig. 1. The distinctive feature of this carbureter is the absence of any auxiliary air valves or springs of any nature, there being but one adjustment which is the needle valve. The carbureter is designed to operate on the principle that the amount of gasoline required in a mixture is directly proportional to the volume of air, which ratio should remain constant through all variations of engine speeds. Having once adjusted the needle valve to give this desired ratio the company claims that all variations of speed are automatically controlled by the formation of air passages. The needle valve N has its adjustment on top, and air enters at the top instead of at the bottom of the carbureter, and descends in a vertical tube, the open end of which is a short distance above the nozzle. The float is of the ring type. The throttle is a simple butterfly one contained in a union which unites by a 45-degree flange with the carbureter proper, thereby giving a suitable connection for vertical or horizontal attachment.

Oilzum Cylinder Oils

The White & Bagley Co., Worcester, Mass., markets Oilzum cylinder oils, which are made from Pennsylvania petroleum. The primary steps in the manufacture of this oil, the maker claims, are similar to those in the manufacture of other oils, but the final preparation differs. Oilzum oils, before leaving the refinery, are clarified and bleached to free them from the dark red color, this being done by a series of filtrations of Fuller's earth.

Michelin Tire Mastic

The Michelin Tire Co., Milltown, N. J., is marketing Michelin mastic, which is a plastic cement put up in 1 and 2-ounce cans and intended for repair work in tires. It is as serviceable for repairing punctures in inner tubes as for cuts in tire treads caused by driving over crushed rock or broken glass.

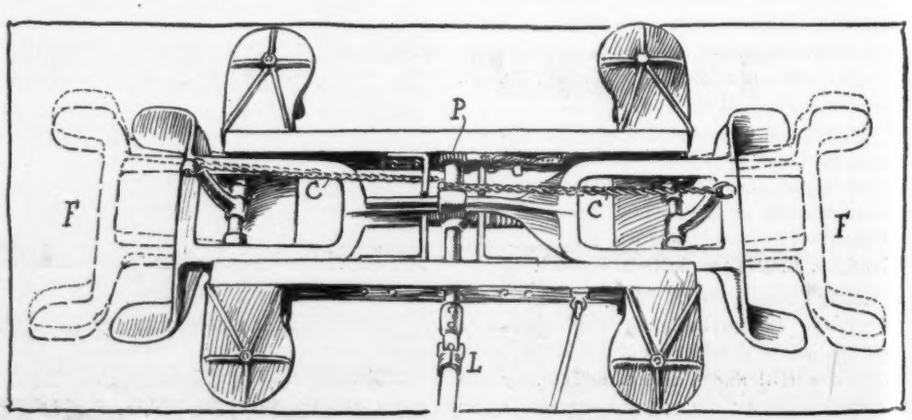


FIG. 3—GARAGE EQUIPMENT CO.'S TURNTABLE